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ORIGINAL LECTURES.

THE TREATMENT OF AFFECTIONS OF THE RESPIRATORY PASSAGES AND OF BLOOD-POISONINGS BY GASEOUS ENEMATA.

A Clinical Demonstration before the members of the Philadelphia County Medical Society, at the German Hospital of Philadelphia, March 30, 1887.

BY J. SOLIS-COHEN, M.D.,
PRESIDENT OF THE SOCIETY.

IT is now some four years since Dr. L. Bergeon, lately Professor in the Medical School of Lyons, commenced a series of experiments in the treatment of pulmonary consumption, by injections of hydrogen sulphide in small quantities, propelled by currents of recently prepared carbon dioxide (carbonic acid gas of the old nomenclature). On the 12th of July of last year, he communicated his results to the Académie des Sciences,[1] and on the 20th of August to the Congress of the French Association for the Advancement of Sciences. On the 19th of October, Professor Cornil read a paper on the subject before the Parisian Academy of Medicine.[2] The beneficial results claimed therein have been confirmed by a number of French physicians, and have been favorably commented on by Dr. J. Henry Bennet, of Paris. A letter from Dr. Bennett in the *British Medical Journal* for December 18, 1886, so strongly impressed me that I wrote to Paris at once for an apparatus, having previously procured a pamphlet on the subject by his pupil Dr. V. Morel, of Lyons, who devised the apparatus which will be used before you; and from whose pamphlet[3] I have obtained most of the information that I propose to communicate—much of it in his own phraseology.

Mr. Kyner, of the Polyclinic, has made for me and for some of my friends, a number of apparatus imitated from this one of Morel, which answer just as well, and which can be procured for $10, less than one-half the cost of the imported one.

I have them in use in this hospital, in St. Joseph's Hospital, in the Home for Consumptives, in the Hospital of the Polyclinic, and in private practice. While unprepared, at this early date, to express a positive opinion as to the value of the method in curing consumption, I do not hesitate to state that sufficient evidence exists to demonstrate its value as a legitimate therapeutic measure; and I have invited you to a clinical demonstration because it is of importance that those of you who have not had access to the original sources of information should see how the administrations are made, in order that you should not submit yourselves to unnecessary disappointment should you feel disposed to give the method a trial, as I believe you should do. As you will see, the process is simple, but requires some precautions which necessitate the presence of the medical attendant at the first few administrations.

The principle upon which the treatment is based is that the disastrous results of pulmonary tuberculosis are due to septicæmia set up by absorption of the noxious products of suppuration in ulcerous lesions in contact with the atmospheric air; and that repeated prolonged bathings of the suppurating surfaces with a safe antiseptic agent, controls the suppuration and gives the lesions an opportunity to undergo cicatrization. When an attempt is made to administer such an agent by inhalation, the quantity required to produce the desired effect is so large that it is poisonous to the individual. The same may be said of administrations by the stomach, or by the subcutaneous connective tissue. Dr. Bergeon, reasoning on some experiments reported by Claude Bernard in 1857,[1] has found that certain antiseptic agents, of which he has found hydrogen sulphide the best, can be administered in sufficient quantities by the rectum with impunity, provided that care is taken not to introduce too much at a time. Claude Bernard demonstrated that when a toxic or medicinal agent is introduced into an organ at a distance from the arterial system—the digestive tube, for example—it could not penetrate into the arterial system because it becomes eliminated before it can reach that system. It has to traverse the portal system, the liver, the hepatic veins, and the pulmonary tissue; during which transit it may be eliminated in the liver by the bile, or, if volatile, in the lungs by exhalation. To demonstrate this point, Bernard rapidly poisoned a bird by enclosing it in a bell glass containing hydrogen sulphide; and then he injected a syringeful of the gas into the veins of a dog with impunity; and, with like impunity, a solution saturated with hydrogen sulphide into the rectum of a dog. In both these instances the gas was detected in elimination within a few seconds by blackening a paper saturated with plumbic acetate and held before the muzzle of the animal, and elimination had ceased at the end of five minutes. Hence he came to the conclusion that this substance could be safely introduced into the digestive tube or into the veins, provided care be taken not to introduce too great a quantity at a time.

The first experiments of Dr. Bergeon were made on animals with chlorine, turpentine, ether, ammonia, and bromine; but these agents had to be abandoned because they soon produced a violent inflammation of the rectum, and even points of sphacelus in the mucous membrane. On the other hand, a mixture of carbon dioxide and sulphuretted hydrogen was thoroughly tolerated when these two gases were pure and completely deprived of admixture with atmospheric air. In their

[1] Comptes rendus, July 12, p. 176.
[2] Bull. de l'acad., 2 me. sér. xvi.
[3] Nouveau traitement des affections des Voies Respiratoires et des Intoxications du Sang par les injections gazeuses, d'après la Méthode du DR. L. BERGEON. Paris, 1886.

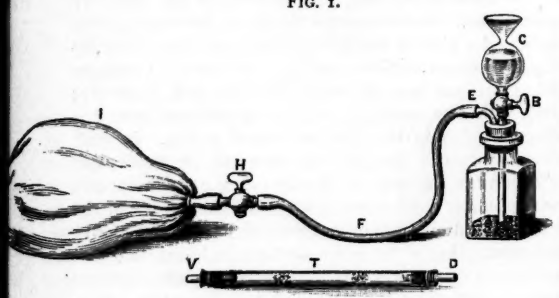
[1] Leçons sur les substances toxiques et médicamenteuses.

union, the carbon dioxide plays somewhat the part of an inert agent, and attenuates the irritant properties of the hydrogen sulphide. Sulphur is well known as a powerful microbicide long recommended in pulmonary disease. Carbonic acid gas is likewise rapidly absorbed by the venous system, and rapidly eliminated by the lungs, provided it is injected slowly and in small quantity. The good effects of carbonic acid gas in pulmonary phthisis, in asthma, and in other affections, have long been known to the profession, as I had occasion to refer to it some twenty years ago in the first edition of my little *Treatise on Inhalation*, and in which I referred, likewise, to some experiments made by Dr. James Collins and myself. In addition to this, the anæsthetic effect of carbonic acid gas may have some influence in preventing colic of the intestine in the introduction of the gas, and in subduing irritation in the pulmonary tract in its elimination. Those of you who, like myself, have been practising medicine in Philadelphia some twenty-five years or more, may remember the experiments as to the anæsthetic effects of carbonic acid gas made by the late Dr. Demmé, at that time Demonstrator of Anatomy in the Pennsylvania Medical College.

Dr. Morel's apparatus for administering gaseous enemata, is based on the principle that a current of carbon dioxide passing over certain gaseous or volatile substances produces a disassociation of the gaseous elements, and drives them forward with it. It is necessary to produce a pure carbon dioxide; and then to pass it through a medicated liquid or over a volatile substance, and to force this gaseous combination into the intestine without permitting any reflux into the reservoir of carbon dioxide.

The carbon dioxide is prepared by dropping a solution of dilute sulphuric acid (200 grammes of sulphuric acid to the litre of water) on sodium bicarbonate. Chlorohydric acid was used in the earlier experiments, but a portion always escaped with the carbon dioxide, and produced irritation of the rectum and kidneys.

FIG. 1.



Carbon dioxide generator and reservoir.

Glass tube, containing volatile medicament between two tampons of cotton.

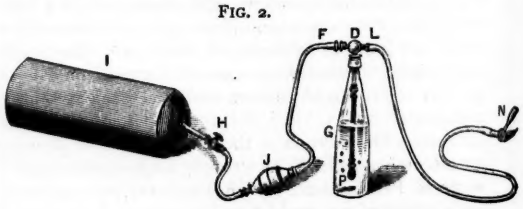
T. Medicament.

V. D. Connections.

The apparatus for generating the carbon dioxide (Fig. 1) consists of a square bottle in which three tablespoonfuls of sodium bicarbonate are placed. The bottle is hermetically closed by a rubber cork with two apertures, through one of which a glass tube extends to the bottom of the bottle, the upper portion (C) being expanded into a funnel and reservoir for the dilute sulphuric acid, beneath which is a glass stopcock (B) to regulate the descent of the liquid. The second aperture in the cork is filled with a curved glass tube (E) for the escape of the gas, and this exit tube is prolonged by a section of rubber tubing (F) for attachment to a rubber bag (I) of six litres capacity, in which the carbonic acid gas is to be collected. The mouth of this bag is furnished with a stopcock (H). The sodium bicarbonate being placed in the bottle, the cork is inserted, and the stopcock of the sulphuric acid reservoir is closed. This reservoir is then filled with the dilute sulphuric acid, say four ounces, and the stopcock is turned so as to allow the acid to drip on the soda. The carbonic acid gas is evolved immediately, the activity of the disengagement being controlled by the stopcock. A little gas is allowed to escape into the atmosphere, so as to drive off the atmospheric air in the bottle. Meanwhile the reservoir is rolled tightly so as to drive out all the air it contains, as far as possible, and is then attached to the exit tube for the gas and allowed to become filled with the carbonic acid. It is then removed and its stopcock is closed. It must be removed before the stopcock is turned, in order that pent-up gas in the bottle shall not break the apparatus. This is one of the points to which the physician must direct the attention of his nurse, before entrusting the patient to the attendant. Another point upon which stress must be distinctly laid, is the rolling of the bag to prevent retention of atmospheric air.

The gas is now ready for use. The reservoir (I) is

FIG. 2.



attached to a handball aspirator (J) with check valves at each end (Fig. 2). This is attached to a metallic T tube (D) passing through a cork which is intended to be placed in the neck of a bottle containing the medicated solution, preferably a highly charged natural sulphur water. The vertical portion of the tube is furnished with a double valve (P) to prevent aspiration of the liquid through which the carbonic acid gas bubbles, and contains an orifice at top for the escape of the gas into the distal horizontal branch, to which is attached a tube (L) connected with a nozzle (N) for introduction into the rectum. As this tube could not be made here in time to supply me with the number of instruments I required, Mr. Kyner, Superintendent of the Polyclinic, has imitated the contrivance at my suggestion by two glass tubes placed in the cork just as in the cork of a modified Wolff bottle; the longer tube being supplied with a valve to prevent regurgitation. It answers equally well with the original. This T branch is placed in a bottle three-fourths filled with the sulphurous water—in this instance the Red Sulphur Spring water, of Virginia—and the aspirator is worked two or three times to drive out the atmospheric air in the bottle, another point to which the physician must emphatically direct

the attention of his nurse. The nozzle is then inserted into the rectum of the recumbent patient and the injection made slowly. All clothing must be loose. With the hand on the abdomen, the amount of distention of the colon is noted, and when this is marked, or when pain is complained of, the process is suspended until absorption takes place, as manifested by relaxation of the tension; and then the process is resumed. Fifteen to twenty minutes are consumed in the process of driving the six litres of carbon dioxide through the sulphur water. The sulphur salt—*e. g.*, sodium sulphide—is decomposed, hydrogen sulphide being formed, a portion of the carbon dioxide taken up to form sodium carbonates.

The only modification of the process I have permitted myself (for I deem it due in justice to Dr. Bergeon and Dr. Morel to test their method of administering the gas in their own way) is to place the mineral water bottle in a bath of warm water, which renders the injection more grateful. Within four minutes, sometimes within one, the sulphuretted hydrogen can be perceived in the breath, and be detected by paper saturated with plumbic acetate. It is prudent to have a bed-pan at hand in case there should be a call to stool. The injection should not be made upon the full stomach. This may produce emesis, it is said. You want all the room possible in the abdomen to prevent pressure upon a distended stomach and upon the diaphragm.

Three or four hours after a meal, or just before one, is the best time for injection. Two injections are given daily. I have found three hours after breakfast and three hours after supper the best periods. My patients have slept better after an injection just before bedtime, than after one, three or four hours after the midday meal.

At the first injections but half the contents of the reservoir of carbonic acid should be used, so that the parts and the system may be gradually accustomed to the process.

If the bottle of sulphurous water remain strongly impregnated after the injection, it may be tightly corked for use a second time. It is not necessary to have the bowels moved before an injection. Hæmoptysis and the presence of the menstrual period do not contraindicate the process. Indeed, Dr. Bergeon has seen amenorrhœa relieved during this treatment, even when that condition had failed to yield to the ordinary methods of treatment for that special condition.

When the pulmonary lesions are extensive, and, in consequence, elimination of the gas takes place slowly, the injections must be made very slowly, or they will produce sensations of fulness in the thorax and in the abdomen.

Now, as to therapeutic results. All published observations recount rapid amelioration of the suppurative phenomena; a marked diminution in cough, expectoration, dyspnœa, and night-sweats, being noted within two or three days. Similar prompt improvement, with reduction of temperature, has been noted in some of my own cases, not in all. Some of his more than 200 patients Dr. Bergeon considers cured. These, he states, no longer expectorate, and present no other stethoscopic evidences than the dry sounds due to cicatrized or cicatrizing cavities, or to cicatricial bands consecutive to old lesions. Some of them have been able to resume laborious occupations, and to ascend several flights of stairs many times a day without injury to their respiratory apparatus, or loss of the ameliorated condition which had been secured. Some who considered themselves cured at the end of a few weeks, abandoned treatment, despite the advice of Dr. Bergeon, and underwent recurrence. It is, therefore, important that the treatment should be continued for some months, until all the pulmonary lesions have been cured, lest incompletely cicatrized surfaces undergo suppuration afresh, and reproduce septicæmia. They should be renewed from time to time, even after apparent cure, and especially upon any reappearance of cough, expectoration, fever, or emaciation.

Not only are pulmonary lesions said to be cured by these enemata, but pharyngeal and laryngeal tuberculous ulcerations are said to undergo cure likewise, and that without any topical applications whatever, simply from the contact of the gas in its elimination from the lungs.

Of the cases treated under my own supervision I have as yet little positive to state. With a single exception, they have done quite well so far, and some of them are very pronounced cases—cases that I have had no hope of benefiting very greatly by any treatment with which I am more familiar. One of my patients insists that she is well, but she is not. Some of these cases are here for the purpose of receiving the treatment in your presence. They will answer for themselves that they are better in several ways. Hope of recovery has much to do with this, but not all. I went through a similar experience more than twenty years ago with inhalations of oxygen in phthisis. Hope buoyed the patients up until they found that oxygen had not the power of curing them, and then some of them, I fear, sank all the sooner for the disappointment. In the present instance the prospect is better, the treatment being more in accord with scientific principles, despite the awkwardness of the method. Try it, gentlemen, and within a few months Philadelphia will be able to prove whether this treatment is to be regarded as a novelty of the moment, or whether it has the therapeutic value that has been claimed for it. In the one instance, it is hardly to be supposed that your patients will have been injured; in the other, they will have had all the advantage of an early resort to a beneficial agent.

Should it be desired to administer some volatile medicament, as iodoform, carbon sulphide, eucalyptol, or the like, the bottle of mineral water is replaced by a bottle of common or distilled water, and between the T-tube and the injection-pipe a glass tube is inserted, in which the volatile substance has been introduced between two tampons of cotton. (Fig. 1, V, T, D.)

In addition to pulmonary phthisis, the following diseases are said to be usefully treated by this method, the therapeutic principle being the same in all of them: asthma, whooping-cough, bronchitis, pulmonary catarrh, typhoid fever, the eruptive fevers, puerperal fever, and general septicæmia. If this be true, the list can be extended, as stated by Dr. Morel. The gas acts on the mass of infected blood in the right cavities of the heart, and upon its entire transit through the ramifications of the pulmonary artery, so that the venous blood is disinfected in its course to the pulmonary alveoli and reënters the branches of the pulmonary veins in a purer condition.

ORIGINAL ARTICLES.

THE TREATMENT OF PULMONARY DISEASES BY GASEOUS ENEMATA.

A PRELIMINARY REPORT.

By EDWARD T. BRUEN, M.D.,

ASST. PROF. PHYSICAL DIAGNOSIS, UNIVERSITY OF PENNSYLVANIA, AND ONE OF THE PHYSICIANS TO THE PHILADELPHIA HOSPITAL.

In the Philadelphia Hospital for the past seven weeks, the treatment of various forms of pulmonary disorders by the use of carbonic acid gas impregnated with sulphuretted hydrogen has been practised, according to the plan inaugurated by Dr. Bergeon, of Lyons, and described by Bennett.[1] In carrying out the treatment upon a considerable number of cases, much care and attention to detail have been necessary. Dr. McLaughlin, Resident Physician-in-Chief of the hospital, and Dr. Taylor, the Resident Physician in charge of my wards, have devoted a large share of their time to secure the proper administration of the gas, and owing to their valuable assistance it has been possible to give the attention necessary to a careful trial of the treatment.

The twenty-five cases of phthisis chosen on which to make a trial of the gas, included mostly patients suffering from advanced lesions, nearly all associated with cavities, marked bronchial catarrh, and some laryngeal lesions. At this time we are engaged in making a series of critical observations in reference to many essential features bearing upon the permanent value of the treatment, such as the best mode and frequency of the administration of the gas, the quantity and quality to be employed, and the effect upon the sputa, including the bacillus of tuberculosis. Our investigations into these subjects are still in progress; moreover, time is necessary to secure a proper estimate of the permanent beneficial effects of the treatment upon the lesions in the lungs. This report is, therefore, preliminary in character, and designed simply to record the results thus far secured.

The histories of the cases under treatment have shown that the element of suppuration, as it occurs in the pulmonary cavities, and in the bronchial passages, has been positively and promptly antagonized. The temperature has been reduced in a few days, and within two weeks has frequently been brought to a normal point. In grave cases with advanced pulmonary lesions, the temperature has continued to rise a degree or so above the normal standard, but during the period of treatment in more than twenty cases, the temperature chart has always been positively modified.

Together with the reduction in temperature has followed the cessation of night-sweats in most instances, and in all, this symptom has been markedly lessened. In cases in which evidences of bronchial catarrh have been present, such as râles, and copious muco-purulent expectoration, the râles have disappeared, or have been decidedly decreased, and in nearly all instances the digestive system has been favorably affected, the tongue has become clean and natural, the appetite has increased, and also the ability to assimilate and appropriate food.

In most cases the gain in weight has been progressive and considerable, and the nervous symptoms incident to phthisis decidedly influenced for the better, and a more cheerful disposition secured. The immediate effect of the introduction of the gas upon the pulse, has been to lessen it by fifteen to twenty beats, and the respiration *temporarily* increased. The pulse-rate has subsequently been proportionate to the general condition of each individual case.

The effect of the treatment upon cases of bronchitis associated with emphysema has also been tried and the bronchitic element conspicuously modfied.

A woman æt. forty, entered the Philadelphia Hospital February 5th, with entire consolidation of the left lung of the variety frequently described as catarrhal or broncho-pneumonia. She had taken cold in December, 1886; had previously been a healthy, rather stout woman. The following symptoms, as abstracted from the clinical history, were present: Abundant muco-purulent expectoration, more than a pint in twenty-four hours; profuse sweats; pulse 120, temperature ranging from 100° to 103°; anorexia, with coated tongue, and inability to receive and appropriate food. After treatment with the gas, administered twice daily since February 10th, she now seems to be convalescent. The temperature is normal, pulse 90, appetite excellent, and flesh increasing. The apparent beneficial effects were noticed within the first week, but it was four weeks before the patient was free from fever. The appetite improved within a few days from the first employment of the treatment, and simultaneously, the nervous symptoms, such as hysterical tendencies and excitement, disappeared. In this instance all treatment, except the gas, was suspended. At this date the physical signs of pulmonary lesions seem to be disappearing, and the lung seems to be approaching the normal condition once more.

Four other cases among the group seem deserving of special mention. One of these is a case of basic cavity, involving almost the entire left lower lobe. In this case the effects of the gas treatment upon temperature, sweating, appetite, etc., were conspicuous, and the gain in flesh the first four weeks was two pounds per week, but during the last two weeks there has been a loss of two pounds, although the other symptoms continue to improve.

Another case, also one of basic cavity, with marked pleural thickening, copious muco-purulent expectoration, but without other pulmonary lesions; in a word, a case suitable for treatment by the introduction of a drainage tube. The same good effects were noticed, yet although this case has been under treatment for several weeks, the temperature still remains somewhat above normal, and the secretion of pus in the cavity evidently continues, showing that some additional measures, such as those which may tend to secure perfect drainage, are still required.

Another instance is one of pneumo-thorax localized to the lower zone of the chest by adhesions of the

[1] British Medical Journal, December 18, 1886.

lung. In this case constant cough, entirely preventing rest, night-sweats, elevated temperature, anorexia, and loss of flesh, were all marked. The gas treatment has been employed four weeks. The patient's condition has steadily improved, hectic and night-sweats and cough have ceased, and there has been a total gain of ten pounds. The patient takes daily exercise with freedom, and marked improvement in the pulmonary lesions can be recognized.

Finally, in the most sadly diseased case of the group, a man forty-five years of age, five feet ten inches in height, with cavities in both lungs, profuse bronchial catarrh, and weight reduced to 100 pounds, the progress of the disease has apparently been arrested, and although the lesions are too advanced to make it possible for him *ever* to leave his bed, yet the relief of the distressing symptoms of fever, hectic, cough, and expectoration, have certainly been manifest.

Summary.—1. In nearly all cases lasting effects have been secured in the reduction of temperature, suspension of night-sweats, lessened cough, and expectoration, and in some, all physical signs of bronchial catarrh abolished.

2. Temporarily reduction of pulse-rate fifteen to twenty beats, and temperature one-half a degree to one degree during the administration of the gas.

3. The amount of gas introduced into the bowel has varied from three quarts to a gallon at each injection. It has been introduced very slowly, from fifteen minutes to half an hour being demanded by the operation. The administration has been practised in most cases twice in the twenty-four hours. No injurious effects from the gas have as yet been observed.

4. Administration of the gas in different amounts and varying degrees of concentration is now being practised, and also investigations into the characteristics of the sputa.

5. In only one of the cases of phthisis the effects of the gas have been entirely negative.

6. In cases of phthisis complicated by intestinal lesions, experience is still insufficient to make it possible to state positive results.

7. The ultimate value of the treatment can certainly only be established by time. The probable mode of action would seem to be antiseptic, and by reducing suppuration the relief of the attending serious symptoms, the patient is permitted to gain by food, exercise, and general treatment. Thus far, the value of the gas seems to be that of a useful therapeutic measure, rather than a curative plan of treatment.

8. The method of preparing the gas for use in the hospital is as follows: The carbonic acid gas is passed through a solution of chloride of sodium and sulphide of sodium in twenty-two ounces of water. The proportion of the salts has been increased in some cases, and some trials of other combinations are being made.

PRELIMINARY NOTE ON THE CHEMISTRY OF TYROTOXICON.

By VICTOR C. VAUGHAN, M. D., Ph. D.,
Professor of Physiological Chemistry in the University of Michigan.

Mr. F. G. Novie and I have been engaged in the study of the chemistry of tyrotoxicon, and while we have by no means completed our work, we have reached some results which may be of interest to students of putrefaction.

Having a concentrated alcoholic solution of the poison, which we had obtained from milk, we added to it platinum chloride and began to evaporate it on the water-bath, hoping that the platinum would hold the poison and prevent its evaporation at that temperature. Great was our surprise when, as soon as the alcohol was driven off, the contents of the dish exploded with considerable violence. The experiment was repeated several times with the same result. After removing the platinum with hydrogen sulphide gas, the substance was found to have lost its explosive property.

We remembered that the diazo-compounds form explosive preparations with platinum chloride and that they are decomposed by hydrogen sulphide; also that the same compounds give with sulphuric and carbolic acids together a deep coloration. So we tried this test with the tyrotoxicon and obtained a color which varied from a brownish-red to a cherry-red. We then made artificially some diazobenzol nitrate, and found that with the platinum salt it gave a highly explosive compound, that it was decomposed by hydrogen sulphide gas, and that with sulphuric and carbolic acids it produced a deep coloration. But there was this difference: the diazobenzol nitrate gave a green to black color, while, as stated above, the tyrotoxicon gave a red coloration.

Remembering that our tyrotoxicon was obtained by extracting an alkaline solution with ether, we dissolved some of the diazobenzol nitrate in water, added a drop of potassium hydrate solution, shook with ether, removed the ethereal layer, allowed the ether to evaporate spontaneously, and applied the color test to the residue, when we obtained the same shade of color as with the tyrotoxicon. We also found that the ether extract reduced ferric salts in the same manner that tyrotoxicon does.

The diazo-compounds decompose rapidly when exposed to the air. This I had found to be the case with tyrotoxicon. Thinking it not likely that the diazobenzol existed in the cheese and milk as a nitrate, we prepared some diazobenzol butyrate and found the crystals of this to agree exactly with those separated from the cheese, and that they decomposed with the same rapidity when exposed to the air.

So much for the chemical resemblances. From them we supposed it probable that the tyrotoxicon which we had obtained from the cheese, milk and ice cream, consisted of free diazobenzol, some salt of diazobenzol, forming the crystals, and probably some decomposition product.

Next, as to the physiological action of the diazo-

benzol salts. Here I may say that diazobenzol was first prepared by Griess, who made the nitrate and some other salts. We cannot find that the butyrate or lactate has ever been studied, nor can we find that there has ever been any study of the physiological action of any of the diazobenzols.

To a large cat we gave a small bit of diazobenzol nitrate dissolved in water. In a few minutes the animal began retching, and in three-quarters of an hour she vomited freely and later she was purged. The next day the cat was unable to take food. She was then etherized and the abdomen opened. The stomach contained a frothy fluid and its mucous membrane was blanched. Thus, not only were the symptoms identical with those of tyrotoxicon, but the post-mortem appearance was the same as that observed in cats poisoned with tyrotoxicon obtained from cheese, milk, and ice-cream.

From the above noticed facts, we think we are justified in suspecting that tyrotoxicon and diazobenzol are one and the same thing. I should have stated also that a second cat was poisoned with another extract of the diazobenzol butyrate, with the production of the same symptoms as were observed in the one poisoned with the nitrate.

Chemists will now appreciate the great difficulty that has been experienced in isolating the active agent of poisonous cheese. Again, it is altogether likely that the phenol which has been obtained by Brieger and other students of putrefaction results from the splitting up of diazobenzol during the process of distillation to which they have resorted. It has not, heretofore, been supposed that so complex a substance as diazobenzol is formed during putrefaction.

From some oysters which poisoned nearly seventy people in this State lately, we have also obtained the tests for diazobenzol. The symptoms produced by the oysters were identical with those observed after eating poisonous cheese, ice-cream, or milk. It is altogether likely that the active agent in all those foods, which when partly putrid produce the same group of symptoms, is diazobenzol, probably combined with different acids.

It should be stated that the diazobenzol is only a transition product of putrefaction, and soon decomposes itself. For instance, after the oysters had stood for a few days in a warm room, they were tested, and no diazobenzol could be found.

We are conducting some experiments with the hope of ascertaining the nature of the microörganism which produces this poison, but are not ready yet to make any definite report on this point. We will only say that it seems to be a germ which develops best in the absence of air or with only a limited supply of air. We have inoculated two samples of milk with the same material, leaving one sample open to the air and placing the other in a stoppered bottle, and after a few days have found the poison in the stoppered bottle, but not in the open beaker. though this may be explained by supposing that decomposition goes on more readily in the open jar and the poison does not accumulate. Fresh oysters, inoculated with poisonous material and left in an open beaker, became poisonous, and the same was true of some thick custard. Though here, again, the upper layers of the oysters or custard may have prevented free access of air to the underlying portions. This matter needs further investigation and nothing definite can be said on it at present.

Since writing the above we have obtained a precipitate of tyrotoxicon with gold chloride, which corresponds with the salt obtained by Griess from diazobenzol. It is insoluble in water, but soluble in hot alcohol, from which it is deposited on cooling. We hope soon to be able to obtain enough of this compound to make an ultimate analysis, by which we can determine the question of identity with absolute certainty.

THYMOL IN THE TREATMENT OF ATROPHIC NASAL CATARRH.

By RALPH W. SEISS, M.D.,
ADJUNCT PROFESSOR OF OTOLOGY AND INSTRUCTOR IN PATHOLOGY AND MICROSCOPY IN THE PHILADELPHIA POLYCLINIC.

THE great difficulty in curing or even permanently improving atrophic nasal catarrh is but too well known to laryngologists, and any agent which promises somewhat better results than those ordinarily obtained deserves the closest study.

Some eighteen months ago I began a series of experiments with thymol, being led to think that it might be of value in nasal diseases from observing its effects when used as a dressing on some general surgical cases. After prolonged and careful trial, the following four standard solutions have been adopted: No. 1. Thymol gr. ss; Alcoholis ʒss; Glycerine ʒss; Aq. dest. q. s. ad. fʒj. M. No. 2. Thymol gr. jss; Alcoholis ʒjss; Glycerine ʒss; Aq. dest. q. s. ad. fʒj. M. No. 3. Thymol gr. v; Alcoholis, Glycerine āā fʒss; and No. 4. just twice the thymol strength of No. 3. Nos. 1 and 2 have been used in the atomizer, Nos. 3 and 4 are applied by means of a tuft of absorbent cotton on the cotton carrier.

In early cases of atrophic rhinitis where the epithelium is still intact, and the accumulation of discharge is not great—which are characterized by atrophy of the turbinated erectile bodies, with consequent enlargement of the nasal chambers, and by a peculiar shining red hue of the mucous membrane —the No. 1 solution has been used with the most satisfactory results. This form of atrophic catarrh is invariably preceded by the hypertrophic process, and its pathology is briefly described as being a degeneration from pressure and loss of blood supply; the new-formed fibrous tissue of the advanced hypertrophic rhinitis pressing upon the glands and nutrient bloodvessels, and so causing atrophy. This disease may exist side by side with the hypertrophic variety: I have never found either large abrasions (shedding of epithelium) or an offensive odor in these cases. Under the thymol treatment used two or three times per week, the nasal secretion becomes more liquid, the mucous membrane regains its normal pink color, and, from the peculiar stimulation of nutrition, the turbinated bodies increase in size, so narrowing the nasal cavities to nearly their normal lumen; and in connection with tonic treatment and

careful cleansing of the nasal chambers, the disease has been finally very greatly improved in from three to nine months, in these but slightly advanced cases.

In what I am accustomed to consider *typical* cases of atrophic rhinitis, the following conditions will be found: The patient complains of great, often almost choking dryness in the throat, and of accumulation of mucous crusts, particularly in the vault of the pharynx; loss of the sense of smell; and an intolerable sickening odor may or may not be present in greater or less degree. On inspection the mucous membrane is found to be dry and shining, the turbinated bodies nearly or entirely destroyed by atrophy, and erosions (stripping off of epithelium) may occupy nearly the entire mucous membrane. The nasal chambers are greatly enlarged, so that the pharyngeal wall can be plainly seen by anterior rhinoscopy. The surface of the turbinated bodies is rough and irregular from unequal degeneration, and intense congestion from crust irritation is generally present. By posterior rhinoscopy the pharyngeal glandular tissue is found to be almost totally destroyed, and the vault and nasal fossa are blocked by often intensely offensive dark crusts, which may be either dry, or soft and mucous in character, and often completely occlude the Eustachian tubes and posterior nares.

The lower pharynx presents a most peculiar and typical appearance; the posterior wall is dry, often puckered from lack of moisture, and intensely congested, the posterior half arches appear drawn much nearer together than in the normal condition, and on pressure with a probe the mucous membrane is found to be practically resting on the bodies of the vertebræ. Deeply congested and frequently abraded tissues are found on examination with the laryngoscope, and the trachea and bronchi are frequently also diseased.

This advanced stage of turbinated cirrhosis is almost invariably confined to individuals of a so-called "tubercular tendency," or at least to those whose physique is much below par and average resistance. The profound systemic disturbance resulting from typhoid fever, diphtheria, and the like, is frequently the commencement of this disease. But too often rapid intra-nasal atrophy of this variety is the forerunner of phthisis.

In this form of atrophic rhinitis the No. 2 thymol solution is used with the greatest care; the nares are repeatedly sprayed with it until *clean*, and the spray is then driven with a strong atomizer into the mouth and as high up in the pharynx as possible, the treatment being carried out not less than three times a week. After the thymol spray I occasionally touch the deeper abrasions with a solution of nitrate of silver, 100 grains to the ounce of distilled water, and more rarely make applications of properly diluted tincture of *galanga* to the mucous membrane, using a small tuft of cotton on a delicate applicator for the purpose. The pharynx is then painted with the No. 3 or 4 thymol solution, the applicator being gently carried up until the vault is reached. No. 3 is used until it ceases to give pain, when the stronger solution is applied—the applications being made at each sitting to the mucous membrane previously cleansed by the spray.

In all cases of atrophic rhinitis I invariably follow the thymol solution with fluid cosmoline used in an atomizer, and have found this preparation of great value in protecting the mucous membrane and preventing the formation of dried crusts. Patients frequently state that this application gives them greater apparent relief than any other used. The usual tonic and cleansing measures are used in addition, as without them but little permanent improvement will be gained; outdoor exercise and systematic "training" are insisted upon, and strychnia and chloride of ammonium are usually given internally, along with alcohol and careful dieting. Dobell's solution and dilutions of "Listerine" (Lambert) are most frequently ordered as cleansing agents for the patient to use at home, at least twice daily in an atomizer throwing a coarse, strong spray, or by simply snuffing the fluid through the nose; the nasal douche I have entirely abandoned as troublesome and dangerous.

Under the most careful treatment a cure cannot be hoped for, and marked permanent improvement can rarely be obtained in less than seven to nine months; and I have recently seen cases which although but little improved by six months treatment, were greatly benefited at the end of a year by the thymol treatment.

There is a third class of cases of so-called *rhinitis cirrhotica*, in which I have found the use of thymol particularly beneficial; this form occurs in neglected syphilitic or tubercular children, and occasionally in young adults of the same diathesis. The atrophic process is here very rapid and irregular, the turbinated bodies or their remnants having sometimes an almost honeycombed appearance, or may be entirely destroyed. The amount of secretion thrown off is enormous, the nasal cavities literally *leaking* into the pharynx and down the lips, giving a most disgusting appearance. On inspection the nares are found more or less completely occluded with fluid mucus, abrasions may be numerous and deep, and slight hemorrhages are common. The general appearance of atrophic rhinitis accompanied with congestion obtains: caries of bone and cartilage, and involvement of adjacent sinuses are common. According to Forchheimer, of Cincinnati, ozæna is invariably either syphilitic or tubercular in character, and he states that the bacillus tuberculosis is present in the nasal secretions in all tubercular cases.

This is perhaps the most difficult to cure of any of the forms of atrophic catarrh, but by the use of thymol we have achieved better results than by any other method. The treatment is carried out as for the second class of cases, with the addition of pencilling the turbinated bodies with a solution of tincture of *sanguinaria*, *myrrh*, or *galanga* properly diluted with glycerine; the solution selected being applied after careful cleansing with the thymol solutions. Applications of nitrate of silver in the solid form I think positively injurious from its well-known semi-cauterant and constringing effect; and the insufflation of powdered starch containing a percentage of silver nitrate is as unscientific from the standpoint

of the chemist, as useless to the rhinologist, the metallic salt being converted by the starch into an inactive oxide, and the starch only serving additionally to occlude the nasal chambers. And drugs applied in the form of powder, with the exceptions of iodoform and boric acid, are the reverse of beneficial in this as in all forms of atrophic rhinitis. Specific treatment, tonics, hygiene, and thorough antiseptic cleansing are, of course, insisted upon.

In cases of syphilitic origin I believe that a practical cure may be obtained by prolonged treatment, although atrophied nasal structures will never be replaced; the tubercular cases rarely improve greatly, and usually die of some intercurrent disease before reaching adult life.

The *causes* of rhinitis cirrhotica are as yet uncertain; why one case of advanced hypertrophic catarrh should remain *in statu quo* throughout the life of the individual, and another rapidly degenerate, has not been demonstrated. Ozæna in infants is probably preceded by an intrauterine catarrh of the hypertrophic variety, since turbinated cirrhosis *ab initio* is scarcely conceivable by the pathologist. A chronic rhinitis is frequently set up at birth in tubercular or syphilitic children, to degenerate speedily into a true ozæna at the end of a few months of life. I have yet to see a case of advanced turbinated atrophy in even a comparatively otherwise healthy individual, and believe that a "tubercular tendency" is the strongest predisposing factor in the disease, and a weak vitality a necessary soil. Why also we should find in one case the intolerable odor of ozæna, and in another apparently structurally identical no odor whatever, is as yet unproved. I cannot accept the statement of Lefferts that the odor is due solely to decomposition—from destruction of the serous glands, consequent sticky and tenacious character of the discharges, and damming up and putrefaction of the same within the nasal chambers,—having seen malodorous cases without any considerable amount of pent-up secretion, and observed no odor of consequence in other cases where the nares were completely blocked, the accessory sinuses not being diseased in either case. I think with Mackenzie, of Baltimore, that ozæna from "constitutional causes" is much more likely to give the characteristic stench than that originating from simple inflammatory conditions.

Advanced disease of the *middle ear* is almost invariably found in all cases of turbinated atrophy of long duration; retraction, thickening, and binding down by adhesions of the membrana tympani, with consequent deafness, tinnitus aurium, and aural pain, being the most frequent form of disease. Frequently the drum is deformed by cicatrices, and the history of recurrent, acute purulent otorrhœa may be obtained; a marked tendency to these subacute inflammatory attacks of the middle ear, and to the establishment of a chronic purulent otorrhœa, are characteristic of the ear lesions of advanced rhinitis cirrhotica. No improvement can be made in the aural conditions until the nasal disease has been so far as may be "cured," and I have found thymol of especial service in improving the condition of the aural lesions.

Turbinated cirrhosis cannot be considered a curable disease except in the very earliest stages; highly organized structures once destroyed cannot be replaced; and in consequence of the destruction of the serous glands and the great enlargement of the nasal chambers the patient cannot clear his nose by blowing, consequently even a "normal" amount of mucus speedily dries into scales if cleansing measures be discontinued, with the result of fresh crust-irritation and the rapid lighting up of the atrophic process. The best that can be done in advanced cases is to palliate or improve, and cleansing measures must be continued at intervals throughout the life of the individual to insure no active return of the disease.

After having tried almost every form of treatment, a description of which has been published, I now use thymol almost exclusively, and think that by it better results can be obtained in many cases of atrophic catarrh than by any other form of treatment known to me.

49 N. SEVENTEENTH STREET.

BACTERIOLOGICAL NOTES.

BY GEORGE M. STERNBERG, M.D.,
MAJOR AND SURGEON, U. S. A.

The Liquefaction of Gelatine by Bacteria.

ONE of the principal advantages to be derived from the use of solid media in the cultivation of microörganisms results from the fact that in such media many species exhibit special characters as to their mode of growth, which serve to distinguish them from other species with which they appear to be identical so far as morphology is concerned.

One character, which is common to quite a number of organisms of this class, and which Koch was quick to seize upon as of value in defining specific characters, relates to the power of liquefying gelatine. When one makes a "stick-culture" in gelatine, certain organisms grow along the line of puncture, or upon the surface of the gelatine, and the mode of growth is in some cases quite characteristic. Other organisms liquefy the gelatine. This liquefaction, commencing along the line of puncture, or upon the surface, extends more or less rapidly until all of the gelatine has become fluid and the organisms which have caused this change are found in a mass upon the bottom of the test-tube.

Eisenberg, in his *Bakterio-logische Diagnostik*, divides the non-pathogenic bacteria into two classes, viz.: Those which liquefy gelatine (including fourteen species), and those which do not liquefy gelatine—ten species. The following named pathogenic bacteria liquefy the gelatine: spirillum of Asiatic cholera, Finkler-Prior's spirillum, cheese spirillum (Deneke), bacillus of malignant œdema, B. anthracis, Staphylococcus pyogenes aureus, Staph. pyog. citreus, Staph. pyog. albus, Bacillus pyrocyanus, Bacillus alvei (foul blood).

So far as the writer is aware, no satisfactory explanation of the cause of this liquefaction of the gelatine has been given, although it is evidently connected in some way with the growth of the liquefying organisms.

In the course of my recent experiments upon the thermal death-point of pathogenic organisms I have ascertained that this liquefaction is due to a soluble chemical product which is formed during the active growth of the liquefying organisms; and that a comparatively small amount of this substance will liquefy gelatine quite independently of the living organism. This is shown by destroying the organisms in a liquefied gelatine culture by heat and then adding a small amount of the culture to flesh-peptone-gelatine which has been rendered fluid by gentle heat. Upon placing the gelatine aside in a cool place it will be found that it has lost its capacity for becoming solid.

This I have demonstrated incidentally, in numerous experiments made to determine the thermal death-point of liquefying organisms, and recently in the following experiment:

Into capillary tubes having an expanded end to serve as an air-chamber, I introduced about one-tenth cubic centimetre of an old culture of each of the following organisms:

Bacillus prodigiosus, B. indicus, B. pyocyanus (green pus), and Finkler-Prior's spirillum. The extremities of the glass-tubes were then sealed by heat, and they were placed in a water-bath maintained at 80°C. (=176°F.) for ten minutes. My previous experiments had shown that a temperature considerably lower than this insures the destruction of all of these organisms. The contents of each of these capillary tubes was then forced into a test-tube containing about 3 cubic centimetres of flesh-peptone-gelatine, liquefied by heat. This is accomplished by breaking off the extremity of the capillary tube and heating the expanded end containing air. A control-tube containing the same quantity of the same gelatine was placed with these tubes in a cool place. The following day the gelatine in the control-tube was found to be perfectly solid, while that in the other four tubes was entirely fluid.

Having thus shown that liquefaction of gelatine is due to a chemical product of some kind, produced during the active growth of certain organisms, and that a comparatively small amount of this substance causes liquefaction quite independently of the organism, I trust that some chemist will take up the question with a view to ascertaining the exact nature of this substance.

MEDICAL PROGRESS.

The Treatment of Granular Ophthalmia with Carbolic Acid.—Dr. Collins writes as follows in the *Reports of the Ophthalmic Hospital*, of London, for January, 1887, on this subject:

So intractable a disease as granular ophthalmia has necessarily from time to time had many and varied forms of treatment tried for its cure. Of the numerous caustic preparations that have been used, nitrate of silver and sulphate of copper continue most in favor. Of late I have in several cases applied pure carbolic acid just liquefied, and believe it to be quite as efficacious as these caustics; it has this advantage also, that its application is a much less painful procedure, on account of the local anæsthetic action possessed by carbolic acid. Further, it does not stain the conjunctiva when used for a prolonged period, as is the case with nitrate of silver. I paint it on the inner surface of the everted eyelids with a camel's hair brush, at intervals of one or two days, applying it more particularly at the seat of the granulations. I then syringe any excess off with a stream of water, being careful not to let the undiluted solution go either on the cornea or skin. The surface of the conjunctiva is turned white, and in a minute or two rendered anæsthetic; a slight amount of inflammation is set up, and destruction of the epithelium follows. Absorption of the granulations is stimulated, and the trachoma-coccus (supposing such to exist) is doubtless killed by the carbolic acid.

Hospital Dressing Material of the French Army.—The French military authorities are causing all the stores of materials for surgical dressings to be rendered antiseptic, as was done a short time ago with the field hospital bandaging materials in the German army. The necessary processes for the purpose are being carried out in accordance with a recent order from the French War Office, in which minute instructions have been issued regarding the steps to be taken in the proceeding. The principal dressing for wounds in the French army is still charpie, which in a great measure takes the place of the lint, cotton-wool, and tow, employed so largely in English hospitals. The order states that the whole of the charpie existing in the military hospital establishments, and in the stores and packages provided for active service in the field, is to be rendered antiseptic; a certain proportion being antisepticized by phenic (carbolic) acid, another by boric acid, and a third proportion by *bichlorure* (perchloride) of mercury. As soon as the charpie is rendered antiseptic, it is to be compressed and packed in parchment paper, which is tinged red for the "charpie *bichlorurée*," blue for the "charpie *boriquée*," and left plain for the "charpie *phéniquée*." Each packet is to be plainly labelled and hermetically sealed, and no packet is on any account to be opened until it is required for use.

The steps to be taken for purifying the charpie before rendering it antiseptic, and the mode of imbuing it with the several kinds of antiseptic preparations, are laid down with great precision. To purify the charpie, four litres of boiling water are to be poured on each kilogramme; this is to be allowed to cool, and the charpie is then to be removed and washed freely in fresh water until the water passes off perfectly clear. The charpie, after the water has been pressed out, is next to be soaked for three-quarters of an hour in six litres of a solution, 1 in 30, of chloride of lime, and again washed in water until all odor of the chloride has disappeared. The charpie is then put into six litres of dilute hydrochloric acid, 1 in 30, and half an hour afterward, is withdrawn and washed, until it does not redden litmus paper. It is now pressed, dried, and rubbed until it is sufficiently supple.

The following are the preparations employed for rendering the purified charpie antiseptic. For the charpie *bichlorurée*, 1 gramme of the bichloride of mercury is dissolved in 100 grammes of alcohol; and this solution, together with 10 grammes of glycerine and 10 grammes of Senegal gum, is added to 2½ kilogrammes of distilled water. Into this solution 1 gramme of the purified

charpie is plunged; and, in order to distribute the bichloride throughout its substance, the liquid is pressed out and reabsorbed several times. It is then withdrawn, dried, and packed as previously mentioned.

To prepare the boric charpie, 100 grammes of crystallized boric acid are dissolved in a sufficient quantity of water; 100 grammes of glycerine, and 20 grammes of Senegal gum previously dissolved, are added to the solution; and pure water is added to make up the amount to 2½ kilogrammes. One kilogramme of charpie is treated in this solution in the same manner as has been described with the mercurial charpie.

To prepare the carbolized charpie, two plans are given, but the following is the one recommended as the most simple and equally effective. A layer of the purified charpie is laid on a piece of oiled silk (*taffetas gommé*), and over this is placed a piece of filtering paper of sufficient size. The paper is sprinkled with carbolic acid dissolved in alcohol of 95° strength. The whole is then rolled up in the oiled silk, secured firmly by cord, and placed in a chamber at a temperature ranging from 68° to 77° F. If the charpie is required to be carbolized 10 per cent., the blotting-paper is sprinkled with 100 grammes of the carbolic acid dissolved in 50 grammes of alcohol at 95°; if 5 per cent., then with 50 grammes of the carbolic acid in 50 grammes of alcohol at 95°.

The cost of the several preparations is described as being very small, and the manipulations very simple.—*British Medical Journal*, March 12, 1887.

TREATMENT OF DYSENTERY IN CHILDREN.—SIMON gives the following prescriptions for this affection:

℞.—Sod. bicarbon.	. . . .	gr. viij.
Magnesiæ	. . . .	gr. xxx.
Colombo	. . . .	gr. v.
Nucis. vom. pulv.	. . .	gr. jss.
Pulv. aromatic.	. . . .	gr. xv.

M.—Div. in chart. xx. in num.

Sig.—One powder before the two principal meals, in water or mixed with non-leavened bread.

If this is badly taken, the following may be substituted:

℞.—Tinct. quinquiniæ	. . .	℥iv.
Tinct. rhei.	. . . .	♏ xxx.
Tinct. colombo	. . . .	♏ xxx.
Tinct. nucis vomicæ	. . .	♏ viij.

of which doses of five or ten drops should be given before each meal, either in cold water or water charged with wine of quiniæ.

The diet should be reduced to pulp; eggs, meat pulp, beans carefully boiled and thoroughly mashed; starches in the form of purée of potatoes.—*Les Nouveaux Remèdes*, March 8, 1887.

THE SIGNIFICANCE OF THE RETENTION OF THE MEMBRANES AFTER LABOR.—The importance to be attached to the retention in the uterus of portions of membrane after the completion of the third stage of labor has been variously estimated by different obstetricians: some—*e.g.*, Winkel, Dorn, Ahlfeld, and Graäfe—holding that grave dangers are to be apprehended when this occurs; while others—as Alshausen, Credé, Fischer, and Cohn (who has reported two cases in which nearly the whole membrane had been retained for five days without causing any pyrexia)—believe that little or no danger of hemorrhage, septicæmia, or other puerperal mischief is caused by the retention of even considerable portions of the membrane. An explanation of this divergence of view has recently been attempted by Professor Lazarevich in the opening article of the new Russian *Obstetrical and Gynecological Journal*. His explanation is founded on the fact, unrecognized by most obstetricians, that "the membranes," even at the full term, are composed of and more or less separable into three distinct layers representing the chorion, the decidua, and the amnion. The strength of these has been investigated by Poppel, Duncan, and Ribemont, and the amnion showed by them to be much tougher than the chorion in conjunction with the decidua. Professor Lazarevich has also made a number of researches on the subject by means of an apparatus consisting of two rings covered with India-rubber, between which the membrane to be examined was stretched, the resisting force being estimated by means of a wooden hemisphere on which weights were placed, which the membrane was made to support, more weights being added until it gave way. These observations showed that the integrity of the ovum depends almost entirely on the amnion. During labor some separation of the membranes from one another usually occurs, and this is especially the case when the chorion, split or torn below, maintains a close connection with the decidua, and the decidua with the uterine wall; the progress of the labor also separates the amnion from the chorion. Roemer explains the separation of the membranes from one another by their unequal elasticity, and Professor Lazarevich declares that the chorion, being less elastic as well as more easily torn than the amnion, is frequently ruptured in several different places, some portions coming away attached to the amnion, and some being left behind attached to the uterus. The causes of retention of the chorion with the decidua are (1) the presence of villi on the chorion; (2) extravasation of blood on the decidua, with consequent formation of fibrous adhesions; and (3) adhesions in consequence of endometritis and choritis. The amnion may be retained in consequence of—(1) occasionally occurring adhesions between it and the chorion and decidua; (2) early rupture and escape of all or part of the liquor amnii; (3) a low attachment of the placenta or placenta prævia; (4) intrauterine manipulation; (5) anteversion of the uterus after the birth of the child; (6) exceptional weakness or thinness of the amnion. Retention of the decidua (which is formed from the uterine mucous membrane, not from the ovum) is, as a rule, of little moment, though it is perfectly possible for endometritis decidualis to occur, and for the retained portions of the decidua to serve for the development of microörganisms introduced from without. Shreds of the chorion, if retained either by themselves or together with the decidua, do little harm, as they rapidly undergo chemical and mechanical destruction, and are carried away with the lochia. The amnion, when retained, is much more liable to become the developing ground for bacteria, and it is to the retention of this part of the membranes that alarming symptoms are usually due. Professor Lazarevich lays considerable stress on the importance of straightening or replacing the uterus in its proper

position after the birth of the child, before the afterbirth comes away.—*Lancet*, March 12, 1887.

The "Forced Heart" of Soldiers.—Duporchal, a Surgeon-major of the French Army, reports, in the *Archives de Médecine Militaires* for March, 1887, his studies upon this condition as follows:

In his observations the contour of the heart was carefully studied during repose and after severe exercise, as forced marches; marked dilatation was found to follow great exertion.

The conclusions reached are:

1. That the condition of "forced heart" is not a morbid entity, but a symptomatic phase common to many diseased conditions of the heart.

2. This phenomenon appears most frequently in diseases attended by modifications in the texture of the myocardium.

3. The symptoms of this condition are palpitation, breathlessness, oppression, precordial pain, "arythmie" (lack of rhythm), and dilatation of the heart. Murmurs may or may not be present; the most frequent are systolic tricuspid murmurs and extracardial systolic murmurs heard in the third intercostal space.

The occurrence of these cases among troops is explained by the constant admission into armies of men suffering from the incipient stages of heart disease, which develops to dilatation under the strains put upon them.

In campaigns these developments occur with especial readiness from the fatigues and bad hygienic conditions under which men are placed.

Incompatible Prescriptions. — The following familiar formulæ, whose combination results in an incompatibility of the ingredients, are taken from the *Therapeutic Gazette* of March 15, 1887:

A common and dangerous action is that resulting from the mixture of alkaloids with alkalies or alkaline salts, of which the following is an example:

℞.—Strychninæ sulphat. . . . gr. ss.
Elixir. brom. chloral. . . . ʒviij.—M.
Sig.—A teaspoonful morning and evening.

The result of this mixture is a colorless solution, from which is deposited in a few hours a crystalline precipitate, which is the greater portion of the strychnine ordered. Although the elixir is not officinal, it is frequently prescribed, and its potassium bromide will deposit the strychnine as an insoluble bromide. The last dose taken, unless great care to shake the mixture well was observed, would result disastrously.

The following prescription may also result badly:

℞.—Morphin. sulphat. . . . gr. ij.
Liq. ammon. acet. . . . fʒss.
Aq. destillat.,
Syr. simpl. . . . . āā fʒij.—M.
Sig.—Teaspoonful doses as ordered.

When the diluted acetic acid has been neutralized, and an excess, although not great, of ammonium carbonate is present, the precipitation of the alkaloid will result as in the first instance.

The following may also prove incompatible:

℞.—Potass. iodid. . . . . ʒj.
Spts. æther. nitros.,
Aquæ . . . . . āā ʒj.—M.

When the spiritus ætheris nitrosi is not free from nitric and acetic acids (a result which is produced by the action of the air) iodine will be set free, and a colored solution take the place of a colorless one. The chemistry of the decomposition of the spiritus ætheris nitrosi is as follows:

$$2(C_2H_5NO_2) + 3O_2 = 2(HC_2H_3O_2) + 2HNO_3.$$

A familiar example of decomposition occurring in the organism when chemical substances are given is found in the simultaneous use of calomel and potassium iodide, as follows:

℞.—Hydrarg. chlor. mit. . . . gr. iv.
Sacchar. lactis . . . gr. x.—M.
F. pulv. No. 10.
Sig.—A powder three times daily.

Also

℞.—Potass. iodid. . . . . ʒj.
Aq. destillat. . . . . ʒiv.—M.
Sig.—Teaspoonful every three hours.

A reaction between the calomel and potassium iodide occurs in the stomach, and bad results, through the irritating mercurial formed, may occur.

An explosion or unfortunate formation of gas may result from this prescription:

℞.—Ammon. carbonat. . . . ℈ij.
Syrup. scillæ . . . . fʒj.
Syrup. senegæ. . . . ʒj.—M.

The acetic acid in the syrup of squill has been overlooked in this combination: its union with the ammonium salt would result unfortunately through the liberation of carbonic acid gas.

An Epidemic of Boils in the Lying-in Hospital at Nancy.—A woman was delivered in the hospital, where antiseptic precautions are rigorously enforced, on April 22. On the 24th the back and buttocks were found to be covered with a copious eruption of small boils, which disappeared under the usual treatment in the course of a day or two. On the 28th another woman was confined in the same ward, and on the following day a crop of boils showed themselves on the upper and inner aspects of the thighs and over the gluteal region. Washed with boracic-acid lotion, these subsided. On May 18 the same phenomenon was witnessed in the case of a young woman who was delivered on May 6, successfully treated in the same way, and two other cases occurred, the site of the eruption being the same in every case, on the 15th and 16th of the same month. Dr. Hergott, after investigating the circumstances, arrived at the conclusion that the boils in the cases after the first were attributable to infection conveyed by an imperfectly cleansed bed-pan. This utensil being carefully washed with a solution of corrosive sublimate, no further cases occurred. The possibility of conveyance of infection by such means is evident, and points clearly to the necessity for the greatest care and cleanliness.—*Archives of Gynecology*, February, 1887.

A New Adulterant for Cod-liver Oil.—Paraffin oil is said to be a new adulterant for cod-liver oil. It

can be recognized by saponification—paraffin does not saponify.—*American Journal of Pharmacy*, March, 1887.

RATIONAL THERAPEUTICS OF CHRONIC CONSTIPATION.—DR. SPENDER writes as follows in an article which we abstract from *The Practitioner* for March, 1887:

We assure ourselves of the absence of malign tumor, of stricture of the bowel as a relic of past peritonitis, and of any obstructive difficulty in the rectum and about the anus. These disturbing elements being excluded, constipation is almost certainly due to one or more of three causes: (*a*) imperfect glandular secretion; (*b*) slow peristaltic motion; (*c*) a sluggish habit of sympathetic nerves.

The discipline should be not of the whip or the spur, but a soothing appeal to the dormant resources of nature. Let a pill be prepared containing from a quarter to half a grain of the Socotrine extract of aloes, with a grain or a grain and a half of sulphate of iron. People sometimes (without meaning to do so) exaggerate their difficulties, but this must not tempt us to order more than a minimum dose; and the cases are not a few for which one-sixth or one-eighth of a grain of extract of aloes is quite sufficient. With these indispensable constituents, the aperient and the tonic, a little extract of belladonna (say one-eighth of a grain) may be blended: doubtless it is often helpful, but more often it disturbs vision and insalivation so uncomfortably that it has soon to be withdrawn. We begin, then, by desiring an adult patient to take a pill composed as above three times a day, immediately after the principal meals. He is cautioned that at first there will be probably no apparent effect, and that two or even three days may pass before any medicinal evacuation of the bowels takes place, difficult and perhaps painful. But within the next forty-eight hours there will be most likely an evacuation of the bowels once, or possibly twice in the day; but *nothing approaching to purgation ought ever to be permitted*, and, therefore, the patient must be instructed that when the first loose motion occurs a pill must be withheld, and that he should take only one in the morning and one in the evening. For a time he continues his morning and evening pill, and is pleased to discover that so slender a medicament has such a decided effect. At the end of another interval of two or three weeks (varying with the original difficulty of the case), the patient is compelled by the same reason as before to omit another pill, and he finds that the same result is brought about by one pill daily as was originally produced by three pills. Within another month the allowance of medicine may be reduced to a pill twice or three times in a week; and, finally, the whole scheme of medical treatment becomes merely preventive in its design and scope, and he takes a pill occasionally for the sake of maintaining health and keeping off old troubles.

THE DISINFECTION OF EUSTACHIAN CATHETERS.—Induced by the publication of Lancereaux on infection of syphilis by means of a catheter, in the *Gaz. das Hôpitaux*, of February 23d, MÉNIÈRE describes his method of disinfecting catheters. He uses silver catheters solely, which are kept in a vessel filled with alcohol. Before using a catheter he exposes it for some moments to the heat of an alcohol flame. The alcohol within the catheter is thus set on fire, and the instrument radically cleaned; it is then dipped in cold water. The catheter is then thoroughly cleaned with copper wire. Using this method, it is impossible (?) to produce any syphilitic infection, even using the catheters employed in the treatment of syphilitics. The author soaks the rubber bougies used in dilating the tube in alcohol, and keeps them in a bottle containing tincture of iodine. Every patient, suspected to be syphilitic, is treated with his own bougie.

In January of this year LANCEREAUX discovered in a patient unmistakable symptoms of secondary syphilis. In seeking for the source of infection, the only point elicited was that a profuse epistaxis followed the introduction of a Eustachian catheter. Upon this the author based his conclusion that the catheter was the medium of infection. According to data, the first catherization, the infectious one, took place in the middle of September. As the epistaxis followed a repetition thereof in November, indications would point to a preëxisting chancre in the interior of the nose. In December, three months after incubation, at the time of observation, the patient presented an exanthema. Although it is very doubtful whether the disease can be attributed to the source ascribed by the author, the importance of thoroughly disinfecting all catheters after use cannot be overestimated.—*Archives of Otology*, March, 1887.

UTERINE TENTS AND THEIR EFFECTUAL DISINFECTION.—DR. DIRNER, of Buda-Pesth, has recently written in the *Centralblatt für Gynäkologie* on the effectual disinfection of tents used for gynecological purposes. He observes how, after the greatest precautions, serious pelvic inflammation may follow the introduction of sponge or laminaria tents. This accident is clearly due, not to the mere ulceration of the dilated structures, but to the introduction of septic material through the wounded mucous surface. The preparation of tents by soaking or coating in antiseptic media is insufficient. Septic matter may be introduced with the aseptic tent; surgeons handle and throw about samples at the shops, nor is the process of manufacture always properly superintended. Fritsch's method of coating tents with wax requires warm water to be at hand when the wax has to be melted, and that water may be septic. Dr. Dirner has detected cracks in the wax, allowing the admission of dust. The most carefully prepared dry tents can convey septic germs on their surfaces. For a year Dr. Dirner has employed in Professor Tauffer's wards a special system of disinfecting laminaria tents. He immerses them in a 1 per cent. solution of corrosive sublimate in absolute alcohol contained in a wide-mouthed bottle. When required, a tent is taken straight out of the solution and passed into the canal of the cervix, the patient being previously placed in the semiprone position, and the vagina disinfected. He takes care to inspect hollow stems before introduction, and should any crystals of sublimate be detected in the channel of a stem, it is dissolved with pure water. The results of this practice have been admirable, and he has seen no bad effects follow the introduction of the disinfected tents; provided that absolute alcohol be employed, the expansive power of laminaria is in no way damaged.—*British Medical Journal*, March 5, 1887.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, APRIL 2, 1887.

RECTAL INJECTIONS OF GAS IN THE TREATMENT OF PHTHISIS.

THE general hopelessness of the treatment of phthisis is shown by the avidity with which new methods are sought after. Cod-liver oil, the hypophosphites, respirators, pneumatic differentiation, have in turn been extolled as curative agents, and then, after a variable period, have quietly found their place as useful remedial agents in certain cases and under certain conditions. In our issue of January 29th we referred to the treatment by rectal injections of gas, introduced by Bergeon, of Lyons, and we predicted that we might shortly expect to see a Wolff's bottle by the side of each phthisical patient. We had no idea that our prediction would so soon come true.

This is a progressive age, and knowledge acquired in the wards and in the laboratory no longer filters slowly through the professional press to reach the public in the stillness of the sick room. The ubiquitous reporter, undaunted in his ignorance, and anxious only for a sensational article, hears of the new plan of treatment under trial with some success, and announces it to the public in a widely read Sunday paper, with the startling headings, "A Doctor's Triumph," "Consumption Cured." Telegraphed everywhere, even cabled to Europe, there has been aroused an extraordinary excitement in phthisical circles, and the applications for information at the Philadelphia Hospital are numberless. The demand for rubber bags and Wolff's bottles has exceeded the supply. Other daily papers have taken up the question, and even our esteemed contemporary the *Ledger*, usually so conservative, has had an editorial on the subject, not remarkable for exactness in medical knowledge.

This premature publicity is greatly to be regretted, particularly as very many of the statements which have been spread broadcast over the country are absolutely false. So far as we know, there have been no *cases cured*, certainly not at the Philadelphia Hospital, and even those of Bergeon's patients who were most benefited continued to have slight expectoration containing bacilli. The results at the Philadelphia Hospital, in the limited series of cases which have been under treatment, and which are given in the preliminary report of Dr. Bruen elsewhere in this number, have been in the reduction of the fever and the sweats, the lessening of the expectoration, and in the increase of weight. These are gains to be thankful for, and encourage us to hope that we may have here a remedial measure of some value, but further than this nothing can be said. Phthisis, as we usually meet it, is not an acute disease, and an experience of seven weeks is far too short a time in which to form a judgment of the permanent beneficent effects of the treatment. The greatest care must be exercised in the analysis of the cases, and we must have specific details as to the pulmonary condition. We are glad to learn that it is proposed to follow up accurately the clinical history of the twenty-five cases already under treatment, as from their careful study we may hope, in a year, to receive more valuable and definite information than many scores of cases observed for but a limited period could afford.

The technical details of the method are fully described in Dr. Cohen's paper, which appears in another column. We would earnestly advise those practitioners who will employ this method to state frankly to their patients that it is not a well established plan of treatment, but only an experimental effort which may or may not succeed. It will take a year or two at least to test its value thoroughly; and meanwhile it is sad to think that so many poor victims of this direful disease will suffer also the delirium of false hope aroused by the premature and unreliable statements which, unfortunately, have been given wide currency by the daily press.

THE TREATMENT OF EXSTROPHY OF THE BLADDER.

IN THE MEDICAL NEWS for July 3, 1886, we called attention to the admirable method proposed in 1861 by TRENDELENBERG for the relief of exstrophy of the bladder. In a subsequent communication to the Fifteenth Congress of German Surgeons (*Archiv für klinische Chirurgie*, Bd. xxxiv. Heft 3), he points out the imperfections inseparable from any operation for exstrophy of the bladder, which aims only to unite the soft parts by means of flaps, and repeats his conviction that the best results can be obtained only when an attempt is made to approximate the separated pubic bones. After a number of fruitless

experiments, he announces that he has arrived at a method which comes very near to perfect success.

This method, as we have already stated, consists in dividing the sacro-iliac synchondroses, and bringing the pubic bones together by means of external compression. The first step of the operation is as follows: The patient is anæsthetized and laid on his belly; the operator's index finger is carried into the rectum and serves as a guide to the sacro sciatic notch. The skin and other tissues are then divided down the synchondrosis on each side, in the line of each synchondrosis, and this is incised sufficiently deep to permit each ilium to be sprung away from the sacrum. This makes it possible to bring the pubic bones together. The wounds are treated antiseptically with small drainage tubes, and the skin closed over them. The pelvis is now encased in a girdle, crossing in front and bearing a weight on each side, which presses each ilium toward its fellow. From four to six weeks afterward the bladder defect—which has meanwhile become narrower—is operated upon directly. The edges are fastened to a considerable width all the way down to the orifice of the urethra, and united with fine silver wire sutures. The sutures overlap, but do not include the mucous membrane, and the wires may be supplemented with superficial thread sutures. A small rubber tube or silver catheter is left in the newly formed urethra. The after-treatment of the patient requires great care to prevent bedsores, and dangerous movements. Trendelenburg has never yet attained a healing by first intention, and his two most successful cases required a second operation. In neither did he secure continence of urine.

In the same number of the *Archiv für klinische Chirurgie* there is an elaborate paper upon the treatment of exstrophy of the bladder by PASSAVANT, who recommends gradual approximation of the pubic bones by compression, as a preliminary step, before attempting to unite the edges of the defect in the soft parts. Passavant points out the analogy between harelip and exstrophy of the bladder, and calls attention to the fact that DEMME, before 1855, succeeded in two cases in approximating and securing firm union of the pubic bones, and in increasing the capacity of the bladder, when assisted by a retentive apparatus. Unfortunately, Demme does not appear to have attempted to complete the cure by closing the edges of the defect. Passavant, who appreciates the promise of Trendelenburg's method, prefers gradual approximation, without a cutting operation, as less dangerous, while he admits that, if Trendelenburg's operation can be shown to be safe, it will be preferable, because more rapid. Passavant has tried his own method in three cases, with satisfactory results as to approximation of the pubic bones; but he has not yet proceeded to the step of closing the defect in the soft parts.

The chief interest in Passavant's paper is in his thorough and scholarly consideration of the anatomico-pathological conditions of exstrophy of the bladder and epispadias. These may be briefly illustrated, as has been done by Thiersch, by the relative condition of a book when it is closed and when it is opened so that the covers come together at the back. The space between the back of the cover and the bound pages represents the urethra, which in the normal state occupies the lowest part of the penis; but in the state of epispadias occupies the uppermost part. In epispadias the lateral parts of the penis are separated widely above and draw the urethra up between them and even above them. The cure must consist in bringing the sides up to their normal position and keeping them there. This can be accomplished only by correcting the deformity in the pelvis, and to do this Trendelenburg, as we have seen, advises division of the sacro-iliac synchondroses and rapid approximation of the pubic bones, while Passavant advises gradual approximation by compression without cutting.

We entirely agree with Passavant that Trendelenburg's method would seem to be the preferable one, if devoid of danger. And the latter's experience appears to indicate that it is unattended with risk, if properly conducted.

Both methods give the greatest promise of success when undertaken very early, even in infancy, because of the yielding character of the pelvis at this age, and Passavant suggests a resection of the pelvis after the age of puberty. In doing this he fears that the separation of the parts might lead to dangerous inflammation. This possibility we do not think so serious as Passavant does, in view of the results of aseptic surgery in our day. And, so far as the danger depends upon the formation of gaps in the bony parts, we recall the experience of Schede, in securing healing by means of blood-clot, which we commented upon in THE MEDICAL NEWS of September 25, 1886. If the principles of Schede's method were applied to the operation of resection of the pelvis, we think it likely that it would not prove to be so formidable as Passavant thinks.

In conclusion, we recommend to our readers a careful consideration of the merits of the plans proposed by Trendelenburg and Passavant, for the relief of exstrophy of the bladder, and hope that American ingenuity may suggest some improvement on the apparatus of Passavant, or even of the operative procedures of Trendelenburg.

A NEW METHOD OF DILATING THE UTERINE CAVITY.

IN April, 1886, VULLIET, of Geneva, presented to the Academy of Medicine a paper in which he claimed that he was able so to dilate the uterine cavity as to bring into plain view all parts of it, even

the fundus, thus enabling the physician to inspect and treat morbid conditions of the endometrium, these objects being most desirable in chronic endometritis, fibroid tumors, and polypi, but especially where the mucous membrane of the uterus was the seat of a malignant growth. The dilatation was accomplished by means of small tampons of cotton previously dipped in an ethereal solution of iodoform and dried, to which were attached threads to facilitate their removal: one of these tampons, no larger perhaps than a good-sized pea, was pushed up to the fundus, with the aid of a sound, and this was followed by others until the uterine cavity was completely filled. The tampons remained in position for two days, and were then removed without difficulty, for at the end of that time the cavity was always found considerably enlarged, and the greater space thus obtained was at once filled out by fresh pledgets of cotton. Continuing in this way for about eight days the cavity of the womb and the cervical canal would be so well dilated that the endometrium could be inspected throughout its extent, the cavity could be easily explored by the finger, and both operative measures and therapeutic applications could be employed with great facility.

In order to determine its merits, the Academy appointed a commission composed of Charpentier, Cusco, and Tillaux, to investigate the practical application of this manner of dilating the womb. The report of the commission, published by Charpentier, in the *Nouvelles Archives d' Obstétrique et de Gynécologie* of December, 1886, endorses, in quite an enthusiastic manner, the claims advanced by Vulliet for the value of his method. It was found that chronic endometritis could be treated either by the curette, or by the local application of powerful remedies, with the most gratifying results, that the capsule of a fibro-myomata could be most conveniently incised, leaving the tumor to be afterward expelled from its bed by the contractions of the uterus, but that the greatest good was accomplished in cases of cancerous degeneration of the endometrium, for, with the morbid growth well exposed to view, the diseased tissue could be thoroughly scraped away and the raw surface well burned with the actual cautery. Several cases of this sort are described, in which, for the time at least, most satisfactory results were obtained.

The objection to this method of dilating the uterine cavity, and it is by no means a light one, is the great pain it gives the woman at first, although the uterus, it is claimed, soon becomes more tolerant of the foreign substances within it. The process of dilatation is, moreover, a slow one, but in spite of the length of time that the absorbent tampons remained within the uterus, they were free from odor when removed, and in no case was there the slightest rise of temperature or other manifestation of septic infection. That this method of Vulliet has some merit must be conceded, for circumstances can readily be conceived under which the accessibility of the interior of the uterus to the sense of sight and touch would be of the greatest assistance to the physician, by making the diagnosis of disease in that region more sure and its treatment more effective.

FALLACIES OF FILTRATION.

The average householder is sensitive upon the subject of his filter. He has paid a heavy price for the word "patented" stamped upon it, and the limpid stream which trickles from it is to him a sufficient refutation of all aspersions upon its efficiency. If he changes the filtering material once annually, the whole duty of man has been accomplished. It is only when the trickling stream dwindles down to an hourly drop that any doubts arise as to the fidelity of the trusted utensil.

What has preceded this clogging? A filter arrests a large proportion of the particulate matters in water, and in ways that are obvious. Among such matters are bacteria—chiefly represented by the ordinary almost omnipresent *water bacteria*, which are practically harmless as constituents of drinking water, unless they remain there under conditions favorable to the development of those products of decomposition intermediate between proteid matter and its ultimate dissolution. In addition, and held in the pores of the filter by some means not fully understood, there is present a portion of the soluble albuminoids of the water; here, then, we have congregated both the microörganisms and their culture-medium; and, given a reasonable degree of temperature, here are the conditions requisite for introducing into the filtered domestic water supply the complete series of soluble products of albuminoid decomposition. Not only is this the case, but, after the first few days of use, the completeness of the removal and retention of the bacteria is diminished, and the results of the proliferation of these organisms are manifest in their numerical increase in the filtered as compared with the unfiltered water. This is well shown in a series of experiments with different filters, by Dr. G. T. Swarts, reported to the Rhode Island Medical Society, and recorded in *The Boston Medical and Surgical Journal* of March 24, 1887.

His results show that some filters when first used successfully remove a certain proportion of organisms from the water. Other tests made seventeen days later showed in every case a marked increase in the number of colonies in the filtered as compared with unfiltered water. For instance, the unfiltered water contained thirty-six colonies of growth, while the filtered water showed the presence of colonies to the number of 2000, 9000, and 10,000.

An examination on the seventieth day showed an increase in case of one filter, of 117,000 colonies.

Another series of experiments was made to determine how far the consumer could cleanse his filter or sterilize it in some simple manner. The results showed, however, that even with every possible precaution, the number of organisms in filtered water exceeded the number in unfiltered by several thousands.

These investigations show conclusively that the organic matter retained in the meshes or interstices of the filtering media, contains organisms which increase rapidly while the filter is or is not in use, and especially if its position is in a warm kitchen or in proximity to a hot-water pipe.

The question of what would happen if a few stray germs of typhoid or cholera should enter this ready-made culture bed, and sojourn there until, reinforced by their progeny, they enter the organism of the unsuspecting prohibitionist, one hundred thousand strong, is unpleasantly suggestive.

WE understand that there is no truth in the report that Dr. H. C. Wood intends to accept the Professorship of Medicine in the Johns Hopkins University.

DR. HUNTER MCGUIRE, of Richmond, Va., is to deliver the annual address before the Alumni Association of Jefferson Medical College of Philadelphia, April 4, 1887. His subject will be "Progress and Development of Medical Science."

PROFESSOR ARLT, the eminent Professor of Ophthalmology in the University of Vienna, died March 7th. He was retired in 1883, having been well known and honored for his many writings and discoveries. He was the first to insist upon the necessity of having glasses prescribed and fitted by physicians instead of opticians.

A CABLEGRAM announces the death, in his seventy-seventh year, of Dr. Arthur Farre, Honorary President of the Obstetrical Society of London, and physician extraordinary to the Queen, and physician-accoucheur to the Princess of Wales.

DURING the recent festivities connected with the celebration of his ninetieth birthday the Emperor of Germany conferred the first class decoration of the Order of the Red Eagle upon Dr. Lauer, his physician in ordinary.

DR. LANGE is reported to have successfully extirpated a carcinomatous larynx from a woman at the German Hospital, New York, five weeks ago.

REVIEWS.

SKIZZENBUCH ZUR EINZEICHNUNG OPHTHALMOSCOPISCHER BEOBACHTUNGEN. Von DR. O. HAAB. Zürich: Hofer & Burger. Philadelphia: James W. Queen & Co.

SKETCH-BOOK FOR RECORDING OPHTHALMOSCOPIC OBSERVATIONS. By DR. O. HAAB.

DR. HAAB'S "Sketch-book" consists of three series of colored plates, with a few pages of explanatory text. The first series presents merely the plain general color of the normal fundus, in the second the optic disk is represented, while the third gives the retinal vessels also. The plates are designed to serve as the basis for sketches of cases encountered in practice; enabling one thus to record any lesion or anomaly of the fundus, without expending the time and labor required to fill in all the background and detail necessary for a complete colored sketch.

To make a sketch on one of these plates there are required only the double color-pencil which accompanies the book, with an eraser, the use of which gives yellowish or lighter areas; a common lead pencil or black ink to give gray or black, and a pen-knife, which by scraping away the ground color, gives spots or lines of pure white. But if it is preferred, the sketch may be completed by the use of water colors.

Dr. Haab directs attention to the benefits to be derived from the making of such sketches, both in the value of the records so obtained, and in the habit of close observation developed by endeavoring to reproduce the appearances presented to the eye. On the latter account the sketching of normal and pathological eye-grounds might well form an important part in the training of every ophthalmoscopist.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, March 9, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. LEWIS A. STIMSON read a paper on

THE TREATMENT OF OLD DISLOCATIONS OF THE ELBOW.

The great extension given in the last few years to the application of operative methods in the treatment of surgical diseases and injuries, has compelled a reopening of many questions which had been previously looked upon as settled, and has made it necessary again to collect and study the recorded experience for our guidance in the future.

Among these questions, that relating to the propriety of interference in old, unreduced dislocations is an important one, and one upon which experience is rapidly accumulating; and among these dislocations those of the elbow have an important place. The loss of mobility resulting from the injury, especially in the common dislocation of both bones backward, is usually so great that the disability is serious, the patient is unable to bring the hand to the head or chest, and is able to use it only in the arc of a circle whose radius is nearly

equal to the length of the extended limb, and he may, in addition, possess only such rotation as can be effected by movements at the shoulder. Moreover, the injury is most common in the young, and the disability, therefore, lifelong. I desire to present to the Society a brief record of a personal case, in which features of interest and importance appear, and a survey of the recent experience of others.

My case is as follows: Maggie F., a rather delicate-looking girl, eleven years old, was admitted to the Bellevue Hospital in April, 1886, with a backward dislocation of both bones of the right forearm, which had been produced five months previously by a fall from a sofa. The elbow was flexed at an angle of 150 degrees, and was immovable except for some rotation. The soft parts covering the joint were normal in appearance and to the touch, and it was possible to recognize by palpation the relations of the bones, and that the internal epicondyle was lacking, and that the external condyle was greatly thickened posteriorly, overlapping the upper surface of the head of the radius. The length of time that had elapsed since the injury was received, the extensive new formation of bone, and the degree of the disability led me to attempt to relieve the condition by an arthrotomy, Drs. McBurney and Halsted being present and assisting.

An incision was begun at the outer aspect of the arm, about two inches above the epicondyle, carried down to and a little beyond the latter, and continued for a short distance along the forearm parallel to and a little in front of the radius, and through this the mass of bone of new formation on the back of the external condyle was freely exposed and chiselled away. This mass grew backward and downward from the upper portion of the posterior aspect of the external condyle and the shaft above it, completely overlapping posteriorly the head of the radius in the form of a buttress against which the latter rested, and was continuous on its outer and inferior margins with the condensed soft parts which formed the new capsule.

The anterior part of the capsule, which was drawn snugly around the lower end of the humerus, was easily separated from it, and the articular cartilage of the latter appeared smooth and unaltered, but the dissection behind the humerus was made very difficult by the interposition of a mass of fibrous tissue between it and the greater sigmoid cavity, which entirely filled and was closely adherent to the latter. Dr. McBurney advised the making of a second incision upon the inner side of the elbow to facilitate this dissection, but unfortunately I preferred to meet the difficulty by dividing the olecranon, being encouraged so to do by the reports of some cases to be subsequently mentioned, and by personal experience of the method in operations for tubercular disease of the joint. So the incision was extended across the olecranon, and this process was divided obliquely at its thinnest part. The back of the condyles was then easily freed, and the epitrochlea was found to have been broken off and to have reunited with the humerus at some distance above its normal position. The attached internal lateral ligament was then separated from it, and the bones were then readily brought into place. The coronoid process of the ulna had not been broken.

The olecranon was sutured with silk-worm gut, a drainage-tube placed behind the condyle through the external incision, the wound closed, and the limb placed in a splint with the elbow at an angle of about 145 degrees. It was possible to flex it to a right angle, but in that position the strain exerted by the triceps upon the olecranon was so great as to endanger its reunion. As the history will show, in thus seeking to avoid failure of union, the occurrence of another and more serious accident which I did not anticipate—recurrence of the dislocation—was favored. Two days later the dressings were changed and the limb was enveloped in plaster-of-Paris bandages. A week later a fenestra was cut, and the tube removed; there was little or no suppuration. During the following month I was absent from the city; on my return the dressing was removed, and the wound was found to be solidly healed, but the dislocation had recurred.

A second operation was done three weeks later, two months after the first. A curved incision was made, its convexity upward, beginning just below the outer side of the head of the radius and crossing above the olecranon; the ulnar nerve was exposed and drawn aside, and the joint was opened by cutting through the triceps. The joint surfaces were found almost denuded of cartilage and much changed in shape by bony and fibrous outgrowths at their borders, so I excised the lower end of the humerus and the head of the radius; the bone was much softer than usual. I enlarged the sigmoid cavity by scraping and cut a notch in the lower edge of the humerus to receive the olecranon; catgut drains. Close fibrous union of the former division of the olecranon was found. The wound healed without incident in thirteen days; passive motion was made for several weeks, and the patient left the hospital with flexion to within a right angle and almost complete extension, but on looking her up in February, 1887, about seven months later, I found the joint completely ankylosed at a right angle. The only good result of the operation was an improvement in the attitude, and against that must be offset the loss of the slight amount of rotation which existed before the operation. There is still the possibility of restoring motion by another excision, but I advised the parents not to have that done at present.

The direct examination of the joint at the two operations disclosed several interesting features, of which some are new, and others have been before described, which bear directly upon the question of the best method of treatment. The extensive overgrowth of bone upon the back of the external condyle has not, I think, been observed, or at least reported, in any other case in which the dislocation had existed for only five months, and it is to be attributed, probably, to the stripping up of the periosteum. Although it may be remembered that a specimen of incomplete outward dislocation in a child eight years old, removed by excision, presented to the Society October 25, 1886, by Dr. Lange, showed a similar growth nearly half an inch broad on the outer aspect of the external condyle, one probably produced in the same manner. Taken in connection with the avulsion of the epitrochlea, which is common in lateral dislocations outward, but rare in the backward ones, and with the apparent integrity of at least the outer part of the anterior ligament, it suggests that the dislocation was produced not by the usual hyper-extension of the elbow,

but rather by a lateral outward flexion of the forearm which tore off the epitrochlea, and was then followed by a twist, which carried the coronoid process backward past the trochlea, and then by a direct impulsion of the bones backward and upward. Displaced in this manner, it is easy to understand that the head of the radius should have stripped the external lateral ligament from its attachment to the condyle, and have passed upward between the periosteum and the bone, leaving the former continuous more or less completely with the ligament, and itself remaining within the cavity thus formed. That the periosteum, thus stripped up, should have so promptly produced the mass of bone formed above and behind the head of the radius, is entirely in harmony with our experience. To this extent the case is exceptional, but other features are of more general occurrence, and may reasonably be looked for under like circumstances. The attitude of almost complete extension of the forearm is common, and the consequent overriding of the bones along the back of the humerus leads to the formation of new cicatricial bands between the olecranon and the humerus, and to the establishment of new attachments by the torn lateral ligaments so far above and behind the centre of motion that almost no flexion is possible without their rupture or elongation, and the return of the bones to their place can be effected only after a far more extensive rupture of these soft parts than that which accompanied the dislocation. In attempting to rupture these bands by forced flexion, the forearm is used as a lever, the fulcrum of which is situated on the ulna below the coronoid process, and the rupturing strain is exerted through the olecranon upon the ligaments and adhesions connected with it, and it is not to be wondered at that this process should so frequently have been broken in the manipulation. In the case which I have described the middle and posterior portions of the internal lateral ligament apparently had not been ruptured, but had been torn away at their upper attachment, remaining continuous with the fragment of the epitrochlea, and after this fragment had reunited with the humerus at a higher point, the ligament was as strong as it had ever been.

The filling of the greater sigmoid cavity by a mass of fibrous tissue, partly by new formation and partly furnished by the posterior portion of the capsule which slips in between it and the bone appears to be of frequent occurrence; it has been encountered in several operations, and the union between this mass and the cartilage of incrustation was so firm in my case, as also in others, as to require the application of the edge of the knife for its removal. When present it must be a serious, perhaps an insurmountable, obstacle to the restoration of the bones to their place by any method which does not directly provide for its removal. The adhesion of the anterior portion of the capsule to the cartilage covering the capitellum was but slight, and the cartilage itself was almost unaltered in appearance after the separation. The reason of this notable difference in the solidity of the adhesions contracted by the cartilage covering the greater sigmoid cavity and that covering the capitellum is not clear.

Another change, peculiar to the young, which was present in only a slight degree, if at all, in my case, is one which may so far alter the shape of the end of the humerus, and particularly of the capitellum, as to make it impossible to replace the radius and ulna even after the removal of all obstacles arising from changes in the soft parts. This change, which has rarely been noted at the elbow, is of common occurrence at the knee in the subluxations following prolonged flexion of that joint. It consists in an exaggerated growth of the epiphysis consequent upon the withdrawal of the pressure normally exerted upon it by the opposing articular surfaces, and as the conjugal cartilage of the capitellum runs obliquely from in front and above downward and backward, this growth takes place in a direction at right angles to that of this cartilage—that is, downward and forward—and the capitellum consequently forms an abnormally large hemispherical prominence on the anterior and lower part of the line. The epiphysis of the trochlea is smaller than that of the capitellum, forming only a comparatively thin scale upon the surface, and there are no observations to show any irregularity in its growth due to this cause. In the reported cases in which the capitellum was deformed, the ulna had remained more or less completely in contact with the trochlea, and consequently the factor of withdrawal of normal pressure did not exist for it. In Dr. Lange's specimen, above mentioned, the capitellum showed this enlargement very plainly, but the inner side of the trochlea was flattened.

Another change which has been observed only in cases of displacement of very long standing, is elongation of the neck of the radius, and this also I think must be attributed to the same cause. Reported specimens in which one or both changes have been observed are those of Humphrey, Allen, and R. W. Smith, but in none of them is it certain that the primary displacement was a traumatic dislocation, for they also presented evidences of defective development.

In Humphrey's[1] case the lower part of the left ulna was lacking, evidently the result of defective development; the right ulna was firmly ankylosed to the humerus nearly at a right angle, and was eight inches long, its lower end was well formed and was on the usual line with the radius; the radius was also eight inches long, and its head was displaced upward and rested against "the free part of the ridge that ascends from the outer condyle to the shaft;" it was somewhat irregular in shape, and its extra length was developed in its shaft and not in its neck as in other cases. The displacement upward was clearly the result of the elongation of the radius, whatever the cause of the original displacement from contact with the capitellum may have been, whether traumatic, pathological, or congenital.

Allen's[2] specimen was taken from the body of an elderly man without history. Both elbows were affected: flexion was normal, extension possible only to a right angle; rotation was entirely lost, the limbs being fixed in pronation. The radius crossed the front of the ulna and was united with it by bony union for a distance of about three inches at the upper part; below this part the shaft of the radius was much thickened. The neck of the radius was one and a half inches long, so that the head was carried well up behind the humerus

[1] Medico-Chirurg. Trans., vol. 45, p. 296.
[2] Glasgow Med. Journal, 1880, vol. 14, p. 44.

on the inner side of the olecranon, and this over-riding was further increased by the abnormal growth of the external condyle downward and outward, the extent downward of the growth being estimated at half an inch. The trochlear surface was deformed, mainly by the loss of its inner lip. The olecranon fossa was so far filled up that the septum between it and the coronoid fossa was one-third of an inch thick.

In R. W. Smith's[1] specimen, which was taken from a woman about forty years old, the radius was displaced forward, and the external condyle was much larger than usual and bent forward, its anterior upper surface forming with the lesser sigmoid cavity of the ulna a deep hollow in which the head of the radius lay.

Finally, partial fractures of the head of the radius and of the coronoid process have been observed in dislocations backward, and the pressure of the fragment of the radius or the formation of bony union between the stump of the coronoid process and the humerus may interfere with reduction. In several cases the fracture of the head of the radius has caused so much disability that resort has been had to arthrotomy (Wagner in *Beilage zum Centralblatt für Chirurgie*, 1886, No. 24, p. 93), and in two cases of backward dislocation of both bones Annandale[2] found the coronoid process united to the back of the humerus "by a considerable amount of osseous material."

To recapitulate: In all cases of backward dislocation of both bones of the forearm of more than a month or six weeks' standing, it may be reasonably assumed that strong adhesions have formed between the olecranon and the stump of the external lateral ligament and the back and sides of the humerus, which must be ruptured or divided before the bones can be returned to their place, and that the greater sigmoid cavity is occupied by a closely adherent mass of fibrous tissue; and when the patient is under fifteen years of age it is probable that the lower end of the humerus has been altered in shape by the formation of new bone under the injured periosteum, on its back or sides, and by the exaggerated growth of the capitellum; and when the dislocation has lasted three months, or more, in a young patient, this deformity of the capitellum may be quite marked, and may be made still more important by an elongation of the neck of the radius.

It is possible also, though not probable, that there may be present a partial fracture of the head of the radius or of the coronoid process, which will seriously interfere with the restoration of the functions of the joint even after the reduction of the dislocation.

Turning now to the bearing of these changes upon the question of treatment, it appears that they are clearly incompatible with successful reduction by the means employed in fresh cases, even if the force employed be sufficient to rupture the adhesions and bring the bones down to the proper level. It is true that successes have been occasionally reported, but the reports rarely go beyond the statement that reduction was accomplished, and they leave the subsequent history of the case, and the degree of reëstablishment of the functions unrecorded. Until quite recently the only methods employed have been forcible attempts to reduce by traction and the breaking of adhesions, sometimes aided by subcutaneous division of the tendon of the triceps or of the adhesions on the sides and back of the joint, increase of the range of motion by the same means without reduction, reduction after fracture of the olecranon by forcible flexion, and excision of the joint.

Albert says that Liston, more than forty years ago, successfully reduced an old dislocation after having subcutaneously divided all tense bands, and that, in 1847, Blumhardt successfully practised arthrotomy in a similar case, making two lateral incisions, and dividing through them all the adhesions that opposed reduction. This case appears to have been entirely lost sight of, and it was not until thirty years later, in 1877, that Küster,[1] in reporting a case of fracture and dislocation of the astragalus, treated by excision, suggested that old dislocations of other joints might be successfully treated by arthrotomy. In the following year Trendelenburg,[2] in a paper recommending temporary division of the olecranon to facilitate operations upon the elbow-joint, reported a case of incomplete outward, or outward and backward, dislocation of both bones with avulsion of the epitrochlea, which he had treated by making an incision along the tendon of the biceps, and chiselling away enough bone from the lower end of the humerus in front of the coronoid process to allow flexion to a right angle; the result was good to that extent. A little later, Volker[3] reported a case of incomplete outward dislocation of the left elbow of six months' standing, in a boy thirteen years old, in which, after division of the olecranon, he had divided the adhesions, dissected away the new tissue adherent in the sigmoid fossa, and had then been able to reduce; as the change in the shape of the bones favored recurrence, he also removed the head of the radius. He then sutured the olecranon with two silk-worm gut sutures passed from side to side of the bone, closed the wound, and obtained a good result. His incision was V-shaped, its sides extending along the borders of the triceps, and the bottom of the V crossing the olecranon at the point where it was to be divided. The position of the limb (ankylosis in almost complete extension), and the evidences of serious pressure upon the ulnar nerve, were important factors in the determination to operate. He was so pleased with the result that he looked forward with confidence to the adoption of the method in all old dislocations with much disability.

Trendelenburg[1] promptly claimed priority in the suggestion of preliminary division of the olecranon, and reported a case of backward dislocation of both bones of eight weeks' standing, successfully treated in this manner. His incision was a curved transverse one, the convexity directed upward, crossing the median line well above the olecranon, and the flap of skin was then dissected and reflected downward to the point at which the olecranon was to be divided; this division was done with a chisel. Because of difficulty in bringing the olecranon down the limb was dressed in extension, but after the nineteenth day, when the wound was healed, the position was gradually changed, and four weeks after the operation the limb could be flexed to a right angle.

[1] Smith: Dublin Quart. Journ. Med. Sci., 1850, vol. 10, p. 213.
[2] Edinb. Med. Journ., Feb. 1885, p. 681.

[1] Berlin. klin. Wochenschrift, 1877, p. 16.
[2] Archiv für klin. Chir., 1879, vol. xxiv. p. 790.
[3] Deutsche Zeitschrift für Chir., 1880, vol. xii. p. 541.
[4] Centralbatt für Chir., 1880, p. 833.

The olecranon reunited solidly in this case, and in Volker's.

In 1885 Nicoladoni[1] published a short paper on the application of arthrotomy to old dislocations of various joints, and included in it the reports of two cases in which he had practised it at the elbow. The first case was an almost complete outward dislocation of the left elbow in a lad sixteen years old, which had existed for eight months; the epitrochlea was broken off and drawn under the trochlea; the limb was in extension, flexion was almost entirely lost, but rotation was preserved. An incision eight centimetres long was made in front along the inner border of the trochlea, and through this the fractured epitrochlea was removed; a second incision of the same length was made on the outer side of the joint, through which, after removal of a small piece of bone which had been broken from the condyle, the soft parts were separated from the radius and the humerus; then, through a longitudinal cut made in the triceps, the adhesions between the olecranon and the back of the humerus were separated, and the bones were then easily restored to place. The wounds healed after slight suppuration; passive motion was begun after the third week, and the patient was dismissed after seven and a half weeks with the elbow flexed and movable through an arc of 35 or 40 degrees. Nine months later he wrote that he could flex and extend the joint freely, but that rotation was not quite so free.

The second patient was a large powerful man, forty-one years old, with a backward dislocation that had existed for six months. The limb was almost completely extended and immovable; there was some passive rotation. Two lateral incisions, each sixteen centimetres long, were made; through the first, over the outer condyle in front of the head of the radius, the soft parts were separated from the bone, leaving the periosteum undisturbed, into the trochlea, and above the fossa trochlearis in front and behind; the separation from the cartilage was easy in front, but very difficult behind; through the second incision, on the inner side of the elbow, the flexor muscles were cut away close in front of the epitrochlea, and the separation of the soft parts from the bone completed. The greater sigmoid cavity was found filled with hard cicatricial tissue, which was cut and scraped away after separation of the posterior attachment of the orbicular ligament. Reduction was then easily made. Two drains were placed on the flexor side of the joint, and one through the tendon of the triceps; the wound was closely sutured, Lister dressing applied, and the limb placed on a splint. Recovery took place without incident, and the patient was dismissed at the end of four weeks, the wounds being almost healed. There was good active rotation, but very little flexion; passively, there were complete extension and flexion to a right angle.

In drawing conclusions from this scanty record of only five cases we may be somewhat aided by the results of similar operations at other joints and in other forms of dislocation at the elbow. In several (five or six) cases of isolated dislocation of the head of the radius arthrotomy has been done with good results, both as regards the reduction of the dislocation and the restoration of function, although the latter has never been complete. I know of only one case (Burkhardt) in which a dislocation at the shoulder has been reduced by arthrotomy, and in this the functional result left much to be desired. In another (Albert) fracture of the surgical neck of the humerus took place during the operation, and the patient recovered with a pseudarthrosis, and in a third (Thiersch) the operation failed. At the ankle, the astragalus has been successfully replaced by arthrotomy by Dr. McBurney in a recent dislocation; and the operation has been done several times with success at the metacarpal joint of the thumb. In a case of thyroid dislocation of the hip, Polaillon[1] lost his patient by acute septicæmia.

In a case of dorsal dislocation of nine months standing, in a child seven years old, Dr. McBurney successfully reduced by arthrotomy, but the head of the femur subsequently became carious and was removed.

The success in Volker's and Trendelenburg's cases, in which the olecranon was divided, was fairly good, and the divided process reunited promptly and well; but in mine the union was only fibrous, and the position of the upper fragment was such that the limb had to be dressed in semi-extension, and to this I attribute the recurrence of the displacement. Probably the difficulty might have been avoided by a more free liberation of the upper fragment, from which I refrained because I did not think it necessary, and did not anticipate the consequences which followed. The method gave easy access to the joint, and a good view of the adhesions that needed to be divided, but in another case I should give the preference to the method by two lateral incisions without division of the olecranon.

The only facts in this brief record which may actually contraindicate resort to arthrotomy are the death of Polaillon's patient, and the change in the articular cartilage observed at the second operation in my case. Of the former it is sufficient to say that the case was of six weeks' standing, and had been subjected to several attempts to reduce under chloroform, the last one three weeks before the operation, and that the region of the hip was still tender and swollen; the patient was delicate and alcoholic. The incision was made in front, from the anterior inferior spine of the ilium downward, and during the operation the dislocation was transformed into a dorsal one. Apparently the operation was done with scrupulous attention to antiseptic details, and the occurrence of fatal acute septicæmia (with emphysematous gangrene) was probably due to extensive bruising and laceration of the soft parts; the record of the case indicates that the parallel between it and operations upon tissues that have recently been subjected to violent traumatism is close.

The change in the articular cartilage observed in my case could hardly have been caused by the inflammatory reaction following the operation, for that was not sensibly greater or more prolonged than after the original dislocation. I am inclined to attribute it rather to the keeping of the knife too close to the bone in the separation and freeing of the soft parts, and think, therefore, that in a similar case it would be better to divide the adhesions than to separate them from the humerus.

The reported cases are too few to justify much general-

[1] Wiener med. Wochenschrift, 1885, p. 728.

[1] Bull. de la Soc. de Chir., 1883, p. 101.

ization, but the large measure of success which they have furnished is an encouragement to further trial. In the meantime, the rules of conduct in the presence of old backward dislocations of the elbow formulated by Albert appear to be judicious. He says that in elderly patients he limits interference to rupture or subcutaneous division of the adhesions, and that if reduction then fails he forcibly flexes the elbow to a right angle, with or without fracture of the olecranon, and allows it to become ankylosed in that position.

In younger patients he makes the attempt to reduce, sometimes dividing the tendon of the triceps so as to avoid fracturing the olecranon; reduction failing, he does an arthrotomy with two lateral incisions, and if this also fails he proceeds to resection.

To this I should wish to add the caution that an arthrotomy should not be undertaken until after the tissues have entirely recovered from the inflammatory reaction and the fresh lacerations of the original injury or of attempts to reduce; and that the longer the dislocation has lasted, and the younger the patient under fifteen years, the less is the probability that arthrotomy will be sufficient, and the greater the probability that excision will be required.

In old incomplete outward dislocations little good is to be hoped for from anything but arthrotomy, for the common interposition of the fractured epitrochlea cannot otherwise be overcome, or the cicatricial obstacles on the inner side removed. The choice will probably lie between improving the attitude by forcible flexion, if the limb is extended, and arthrotomy, the internal incision being made in front of the trochlea rather than upon its side.

DR. PILCHER thought that the case described by Dr. Stimson must have been the same as one he had had under observation during the previous winter. If so, he thought that he might be able to clear up some of the obscure points in it. When he first saw the patient she was under the care of a skilful surgeon, who had made a diagnosis of fracture of the lower end of the humerus into the joint; crepitus under manipulation having been distinct. At the outset of the case there was no indication of a dislocation, as stated by that surgeon, although the conditions were so obscured by great inflammatory swelling, when first seen by Dr. Pilcher, that a satisfactory examination was then difficult. It was said that there had been threatening gangrene in consequence of previous too tight bandaging. In the course of time, after union had taken place and the swelling had subsided, he again examined the case. It was now apparent that a fragment involving more or less of the external condyle had been displaced forward and downward and in its new position, where it had become fixed, encroached upon the articular surface for the radius, limiting the power of flexion at the elbow. There was also a partial backward dislocation of the ulna existing. Along the inner margin of the muscular mass of the forearm which has its origin from the external condyle, there was a depression occupied by dense, fibrous, cord-like tissue. He believed that by the gradual degeneration and contraction of this tissue the displacements had been produced that resulted in the final deformity and loss of function, these being consecutive and remote results of the original injury, which had been a fracture. The limb had been dressed in a position midway between flexion and extension. He had never questioned the correctness of the diagnosis of fracture, although when he examined the patient the condition of the joint was such as to render prolonged manipulation unjustifiable. The inflammatory swelling, and the anterior mass would have been explained perfectly well by a fracture. The patient had been under his observation for some time and a day had been set for an arthrotomy for her relief, when she disappeared. He learned subsequently that the patient had entered Bellevue Hospital.

DR. STIMSON replied that in his case there was certainly no fracture of the lower end of the humerus, but only an outgrowth on its outer side. When he excised the end of the humerus he found that it was perfect, with the exception of the epitrochlea.

DR. WEIR remarked that the good results which had been obtained in cases of old dislocations of the elbow-joint, as time went on, had led surgeons to leave these cases to some extent to nature. It was only of late that he had adopted such means as forcible flexion, division of the triceps tendon, etc., for the purpose of correcting the deformity. But he had come to the conclusion that more could be done in the way of radical treatment. Two German observers, Sprengel, of Dresden, and Schüssel, of Berlin, had shown that we could safely interfere at an earlier period after the accident than was generally supposed, and that failure to reduce the dislocation should be followed by operation, and that the rent in the capsule produced by the original injury should also be sewn up. The prognosis is better the earlier the surgical interference.

DR. GERSTER said that his experience with old dislocations of the elbow embraced four cases, in two of which operations were performed. In one instance (last December), the patient was a child two years of age, having a deformity similar to that described by the reader; the case was first seen three months after the accident. Arthrotomy and excision of the joint were resorted to; a peculiar callus was found over the external condyle, which was shown on section to be due to a fracture of the condyle. After having sawed off the surface it appeared necessary to detach this fragment, as it was so loosely attached to the humerus that it would probably have become necrosed. In all the cases, in addition to backward dislocation of the forearm, the so-called "gun-stock" deformity was marked. He believed that it was possible that the periosteum might be stripped off, and that the interval between it and the bone might become filled with blood-clot, which would organize to form connective tissue, and ultimately bone, although this had never been proved anatomically. In all the cases that had come under his observation, there had been no doubt concerning the occurrence of fracture. In a case under the care of Dr. Daniel Simpson, at the Mt. Sinai Hospital (two years before), a young man sustained a fracture of the external condyle and the capitellum, with dislocation forward, a callus being subsequently formed on the flexor side of the elbow, which prevented flexion; the bony deposit was removed, and the condition of the joint, as regarded flexion, was much improved. The two other cases which presented the same deformity are still under observation. The accident must be more common in young subjects than is generally supposed. In the men-

tioned cases in which he had operated, the speaker had made a large incision, with the express purpose of obtaining a good view of the interior of the joint, and ascertaining the exact pathological condition. He found that the fragment consisting of one-third of the trochlea, and the external epicondyle, together with the capitellum, were twisted around at right angles to the direction of the articular surface of the humerus, so that the capitellum looked into the bend of the elbow. The diagnosis, he admitted, was not easy, especially for the reason that in many cases the patient could not be examined until several hours after the accident, when there was such an effusion of blood that the condition was obscured, and crepitus could not be obtained. The latter was the only positive sign of fracture obtainable. Most of these cases were not examples of simple dislocation, bnt of fracture complicated with dislocation backward and inward. As regarded the results of treatment, in his own case they had been quite satisfactory, flexion and extension being almost completely restored. He had performed arthrotomy in several other cases of dislocation, especially of the thumb; in one instance the flexor tendon had slipped over the head of the metacarpal bone; it was necessary to lift it out of its false position with a strabismus hook. In another case (that of a boy of twelve), the dislocation was not seen until seven weeks after the accident, although reduction would have been easy if it had been practised early. The third case was one of dislocation of the index finger of a boy; reduction was readily effected by means of arthrotomy, and division of the capsule. He also performed arthrotomy in a case of old habitual dislocation of the shoulder-joint in a young girl. Two months after the accident she entered Mt. Sinai Hospital; reduction was easily effected, but the bone would not stay in place, whereupon the speaker incised the joint, removed a portion of the lax capsule from the mesial side of the capsule, closed the latter with catgut sutures, and the patient did perfectly well.

In answer to a question by Dr. Briddon, he admitted that dislocation was generally secondary to fracture. He called attention again to the frequency of "gunstock" deformity in these cases, which Dr. Stimson had not noted.

THE PRESIDENT said that since Dr. Stimson had referred to a case in which he himself had operated, he thought it was proper that the result of the operation should be clearly stated. The patient was a child between six and seven years of age, with old dislocation of the hip, of nine months' standing, resulting from a fall; there was great deformity and disability. Some of the surgeons who examined the patient were in doubt as to whether the condition was dislocation or separation of the epiphysis. A free incision was made over the head of the femur; the latter presented a normal appearance, but a piece of the articular cartilage was easily detached. The head was movable within an artificial sac which contained about a drachm of serous fluid. The acetabulum was filled with a semi-gelatinous material. Reduction was easy after the division of a few adhesions; the wound was closed, and a hip-splint was applied. Neither fever nor other bad symptoms followed, although a sinus persisted for seven or eight months. The speaker had examined the patient about a month before. He found the child well; on manipulating the limb there was neither pain nor crepitus, and motion was fairly free. On introducing a probe, bare bone was discovered at the edge of the acetabulum. A free incision was made, and it was found that the whole head of the femur was carious, so that it was necessary to excise both the head and the neck, and to scrape out the acetabulum. The patient made a good recovery.

In reply to a question from Dr. Weir, the President said that the patient had been kept in bed after the first operation. He thought that the propriety of operating in cases of old dislocation was clear, but that an operation was more likely to be successful if it was undertaken early—that is, not later than two or three months after the accident.

DR. GERSTER said that as far as the propriety of arthrotomy was concerned there was no question about it at the present day. Under the modern antiseptic system a surgeon would do wrong not to interfere if he could not reduce a dislocation, whether he saw the case early or not. In reference to the fatal case of Polaillon's in which complete antiseptic precautions were said to have been observed, the speaker believed that the occurrence of phlegmon constituted in itself sufficient evidence that there was septic infection. The natural inference was that no one ought to undertake arthrotomy who was not thoroughly versed in antiseptics, since he risked not only the patient's limb, but even his life.

DR. STIMSON repeated that in his own case there was no fracture of either condyle of the humerus. At the first operation the articular surface was found entirely unbroken, the outline of the front of the bone was normal, and the mass of new bone on the back of the external condyle was not at all like the callus of a fracture. In reply to the objection, that an effusion of blood would occur between the detached periosteum and the bone, and that this blood would prevent subsequent formation of bone by the periosteum, it may be said the same effusion must take place under the periosteum in cases of fracture, and yet it is well known that bone is abundantly formed there.

Dr. Gerster said that whenever pus was formed it indicated some failure in the technique. In one of his cases the catgut that was used had been placed in an open vessel at an operation that took place two days before, had been left exposed all night, and had then been put into a bottle. This gut was used to tie the vessels at his operation. The patient had a violent chill the same night, with evident signs of septicæmia. Dr. Gerster opened the wound and found three ligatures surrounded by pus; the wound was subsequently treated by the open method and healed quite well. There was no trouble in the joint itself, and the patient now had perfect motion.

TUMOR OF THE BRAIN REMOVED BY OPERATION.

DR. R. F. WEIR presented a tumor which he had removed from the posterior occipital region of the brain. It was, he stated, the largest cerebral tumor that had been removed surgically. A full report of the case was promised later.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, March 17, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

(Concluded from page 361.)

DR. J. LEWIS SMITH said that at the present time the greater part of the profession coincided with Dr. Billing-

ton in the opinion that diphtheria is a local disease primarily; and yet for himself he could not see how this can always be the case. He had met with a number of instances in which the disease had a period of incubation lasting as long as six or eight days, and it, therefore, seemed to him to be from the first a constitutional affection. At the same time, he was thoroughly in accord with the reader of the paper as to the great importance of local treatment. As time went on, he said, he became more and more impressed with the fact that all irritating substances should be avoided in this connection, and hence, he is in the habit of making use of very mild applications. Muriate of pilocarpine had been very highly recommended, and even lauded by some as a specific, but he felt compelled to warn those who heard him against the employment of this agent. It is extremely dangerous, and in one case in which he had used it the patient died with all the symptoms of œdema of the lungs; the fatal result in this instance being clearly due in his opinion to the effect of the drug.

As to nasal diphtheria, the nasal passages are, in his experience, not an infrequent location of the primary exudation. It is, he believed, quite a common occurrence for the diagnosis not to be made until the membranes had become very extensive, and the patient is very apt to die if local treatment is not resorted to at a comparatively early period. As to the medication to be applied through the nostrils, common salt, which had been recommended by Dr. Billington, was, he thought, hardly antiseptic enough, and he preferred to use salicylic or boracic acid. A very good combination is the following:

℞.—Acid. boracic.	ʒj.
Sodii borat.	ʒij.
Sodii chloridi	ʒj.
Aquæ	Oj.

In his practice he is in the habit of making applications to the nasal passages by means of an ordinary medicine dropper.

Dr. Smith thought highly of alkaline inhalations, but the amount of lime in lime water, which is still used to a large extent, is very small. Its alkalinity and solvent action can be materially increased, however, by adding a drachm of bicarbonate of soda to each pint of lime water. As regards trypsin, its expensiveness is an objection among the poor, but it can be used in comparatively small quantities as an addition to the ordinary alkaline solutions. It is, probably, of considerable benefit. Physicians err, he thought, in not carefully noticing at each visit whether the child is becoming hoarse or not. Hoarseness being the first indication of the implication of the larynx and trachea in the membranous exudation, its appearance should be constantly looked for.

Dr. Francke H. Bosworth said that one point of great importance had not been referred to, and this was the fact that glandular tumors of the pharynx offer one of the most favorable evidences possible for the lodgement of the diphtheritic poison; while if the nasal passages and fauces are perfectly normal, the individual is much more likely to escape the disease. The clinical significance of this point was self-evident. Dr. Billington's paper only afforded additional proof of the fact that there are no specifics for diphtheria. It is, therefore, to the faithful carrying out of the two or three indications to which he had referred that we are to look for success in the treatment of this disease. In regard to nasal injections, he thought that placing the use of the syringe in the hands of even a trained nurse, involved considerable danger, and he greatly preferred to employ the spray. Delano's atomizer, to which Dr. Billington had alluded, is a good instrument as long as it will work, but the trouble with it is that it is constantly getting out of order. Hence, it is better to use one constructed on a different principle, and the "Magic" atomizer, which can now be obtained at any druggists for a dollar, is as efficient as any for the throat. For the nose Millard's atomizer, No. 5, costing $1.25, is probably the best instrument. It has a large nozzle, and by means of it fluid can be made to pass in one nostril and out of the other by the force of the current of air generated. Of all cumbrous and useless appliances that have been put into the hands of the medical profession, he thought the galvano-cautery is the worst. The effect produced with it is simply that of heated platinum wire, without any electrical action whatever, and precisely the same results can be obtained by other agents, and in a much more convenient manner.

Dr. D. Bryson Delavan spoke particularly of the value of bichloride of mercury in the treatment, and expressed the opinion that it has scarcely received as much attention in the present discussion as its merits entitle it to. This agent has been constantly shown to have much greater germicide power than carbolic acid; and, therefore, he thought it ought to be preferred to the latter. In his own hands it has proved more productive of good than any other remedy. While in nasal diphtheria the efficiency of the antiseptic spray is unquestionable, he thought it a good plan to spray the nasal passages, even in the pharyngeal form of the disease, as it assists in freeing the pharynx of obstructions, and also enables the patient to breathe through the nose. He preferred the spray very much to the use of the syringe.

The Chair stated that Dr. J. T. Hutton, of Minnesota, having reported unusually good results with the topical use of lunar caustic, Dr. Billington wrote for some further particulars of the method of treatment, when Dr. Hutton replied that he would be present in person on this occasion, and it now gave him great pleasure to introduce that gentleman to the Academy.

Dr. Hutton said that there are probably fifty remedies that will cure diphtheria if we only knew how to use them. While the disease is local in the pharynx he believed that he can arrest it in every instance. His statistics showed a mortality of only 12 in 209 cases, notwithstanding the fact that in several of these he did not give continuous treatment. His experience was confined entirely to Minnesota; although he presumed the disease is essentially the same in its general characteristics everywhere. He had gone to Minnesota to practise nine years ago, but did not meet with any diphtheria until seven years ago. In the neighborhood in which he resided five families had lost twenty children, and thirteen families, thirty-six children from the disease before he moved there. The first time he was called upon to treat diphtheria his experience was very

unfortunate. When he arrived at the house, which was twenty miles from his own home, he found that three children had already died of the disease, and three others were very low with it. He was sorry to say that two of the latter also succumbed afterward. In the next family that he visited he first made use of the plan of treatment to which he has ever since rigidly adhered. In this household no less than five children were dead from diphtheria, and three others were very low with it. All three of the latter, however, recovered under the treatment which he then instituted, and which he believed to be infallible for the first stage of diphtheria in the region of country in which he lived, however it might be elsewhere. He did not make use of it in the stage of stenosis.

The two great indications in diphtheria, he believed, are, *first*, as the disease is local at first, to destroy the false membranes; and, *second*, as the disease is attended with marked vital depression, to support the patient. For destroying the membranes he employs a solution of nitrate of silver of the strength of from twenty to fifty grains to the ounce applied by means of a camel's hair pencil, and he said the application is no more painful than that of syrup or water. These applications should be repeated until all the membrane is completely destroyed, and he had known of violent cases to be sometimes controlled by a single application. Chlorate of potash is also directed to be used as a gargle or swallowed. In carrying out the second indication, an abundant supply of fresh air is a necessity, and if it can be obtained in no other way, the patient should be taken out of doors, unless the weather is intensely cold. As the heart is liable to fail, it is desirable to have the patient as quiet as possible, with the body kept in the recumbent position and sufficiently warm. Milk, eggs, beef-extract, and alcoholic stimulus are to be given freely, and he generally employs quinine in doses of one grain about every hour. With this plan of treatment most of the cases were gotten under control within twenty-four hours, and there was no subsequent paralysis, or other disagreeable sequela. In nasal diphtheria he used a five per cent. solution of carbolic acid by means of the syringe.

DR. JOSEPH E. WINTERS said that local treatment is impracticable in cases of diphtheria limited to the throat in young children, though this is not the case when the disease affects the nose. If diphtheria is primarily local, the first object in the treatment should be to destroy the membranes by means of strong caustics. Yet all who had taken part in the present discussion, except Dr. Hutton, had condemned this course of action. All, however, agreed that local treatment should be directed against the membranes; but for himself, he could not see why so much stress was laid upon the membranes, as long as they were confined to the fauces. If they are removed forcibly, or by means of caustics, they will only reform. The one thing that promotes secretion more than anything else is heat; and it should be applied both internally and externally. Hot applications should be made, and these should be kept continuously hot. The primary indication in the treatment of diphtheria, he thought, is to prevent the extension of the membrane into the larynx, and this is also accomplished by the persevering use of heat. The patient is to be kept absolutely still, and no change from the recumbent posture is to be allowed for any purpose whatever. If heat were properly applied externally and internally, he did not think it worth while to fatigue the patient with the frequent or continued use of the spray. The croup bottle giving off the vapor of turpentine he had found very useful, and he is also in the habit of employing the remedies mentioned by Dr. Billington. In nasal diphtheria local treatment can be satisfactorily carried out if sufficient tact be used. In the treatment of swollen glands in connection with nasal diphtheria, Dr. Winters said that he could not subscribe to the use of ice, as recommended by the author of the paper, as he believed it to be injurious by promoting the spread of inflammation.

DR. H. D. CHAPIN said that he greatly preferred the spray to the syringe for local treatment in the throat, and spoke particularly of the liability of the use of the syringe to excite vomiting.

DR. BEVERLEY ROBINSON said that he should be very much opposed to any form of douche which caused vomiting, and that he also was decidedly in favor of the spray. He did not believe, however, that the ordinary spray-producer is of any use practically. The only atomizer which he employed is that of Dr. Lefferts, and he thought that spraying with an efficient apparatus is the only thorough way of washing out the nasal cavity. The plan referred to by Dr. Smith, of using a medicine dropper, was simply a delusion and a snare, As to Dr. Hutton's method of treating diphtheria, it was pretty nearly as old as the history of the disease itself, and the use of lunar caustic, which had formerly been employed by a large number of physicians, had been abandoned over and over again by one after another. Cubeb, he thought, is more useful in its action upon the throat than the chlorate of potash. He had at one time supposed that it had some specific effect, but he now believed that it is simply a very efficient agent in combating the catarrhal element of the trouble. In his opinion there is no one remedy which will cure a very toxic case of diphtheria invariably, and death will occasionally result whatever means may be employed against the disease.

DR. ANDREW H. SMITH said that while he agreed in the main with the practice of those who had spoken this evening, he did not agree with the majority of them in the matter of theory. As to the nature of diphtheria, he was glad to hear it stated that the membranes do not constitute the disease, and personally he believed it is as much a constitutional affection as scarlatina, for instance, and that the membranes are not even an essential element. We are told that the membranes are precisely the same as those met with in old-fashioned membranous croup, and also in those cases in which patients from time to time bring up complete casts of the trachea and ramifications of the bronchi. But if this be so, the latter class of patients must be affected with chronic diphtheria, and this he believed could not possibly be the case. The membranes, therefore, are not so important as had been represented; but still there is apt to be a necrotic process going on underneath them, and the absorption of septic material rendered it necessary to resort to local treatment. Local treatment is more important in the nose than in the throat, and as the hard-rubber syringe is apt to

cause suffering and do injury, he is in the habit of using a soft-rubber nipple, which is attached to an ordinary hand-bulb. When this is applied in one nostril, the fluid can be made to come out at the other. It is important that the fluid employed shall be of the same density as the serum of the blood, and the preparation which he prefers is a weak solution of bichloride of mercury (1 to 4000 or 6000) with a drachm of salt to the pint of fluid, in order to give it the proper density.

Dr. Thomson said that twenty-five years' experience has convinced him of the advantages of local treatment. He related the following case. A young man whose bed-fellow was taken with diphtheria was separated from his companion and carefully watched. On the ninth day afterward he had a very severe chill; his throat and nostrils then showed nothing but a little diffuse redness. In an hour, however, there was extreme congestion of the fauces, with grave constitutional symptoms; but it was not until the sixth day that any membranes made their appearance. On the sixth day afterward all the membrane disappeared, and the temperature was found to be normal. On the morning of the ninth day, however, he had another chill. The urine was now found to be loaded with albumen, and in two days he died from cardiac paralysis. This was a case, he thought, which clearly demonstrated that diphtheria is a purely constitutional disease. His own treatment, therefore, was based on internal support. His inquiry had always been, What antiseptics can be given in the largest quantity? and he had found the chlorine group could. Bromine is a useful remedy locally, and there is one agent which had not been referred to to-night which is an admirable antiseptic, particularly when any necrotic process is going on. This was the persistent use of oxygen gas.

Dr. Alfred L. Loomis remarked that it seemed to him that Dr. Billington had arrived at the conclusion which every sensible physician would come to who carefully watched his cases. While in a certain proportion of cases the disease might be local primarily, he believed that in the great majority of cases diphtheria is primarily a constitutional affection. In former years he had seen a great deal of diphtheria, and he had travelled over pretty much all the ground that was known, however, as regards local treatment. He had employed, in the first place, mechanical agents; second, escharotics, and, third, astringents, including the nitrate of silver. The conclusion that he had at last arrived at, was that nothing but cleanliness, with local antiseptics, and constitutional support is required. There are no specifics in this disease, and it is always best to treat the case and not the diphtheria.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, March 11, 1887.

Vice-President George Wilkins, M.D., in the Chair.

Dr. George H. Fox, of New York, read a paper on

COMMON ERRORS IN THE TREATMENT OF SKIN DISEASES.

He said that the great error made by practitioners in treating skin diseases, is failure to treat the patient; the disease is treated, but not the patient. It is most important that the patient should have better food, fresher air, and, in fact, everything that tends to improve the general health. Special treatment of the disease is of no avail without first improving the condition of the patient. He thought attention to diet is most important, and said there should be a radical change both in the quantity and quality of the food; a dietary should be given the patient; the majority of patients improve on starvation diet. He advised his patients to increase the quantity of fluids, and decrease the solids; to eat less and exercise more. A change of diet is useful, the more radical the better; he gets the best therapeutical results from a vegetable diet in the treatment of inflammatory skin diseases; a meat diet congests the skin, a vegetable diet lessens congestion. He is in the habit of restricting the meat in winter, and forbidding it in summer. In giving directions to patients, it is better to tell them exactly what to eat instead of what to avoid. Water should be taken sparingly with meals, and in quantity after meals.

In speaking of local applications, he said that very few are needed. If the disease be acute, soothing applications should be prescribed; if chronic, stimulating ones. Infantile eczema is, as a rule, too much stimulated, and chronic eczema, with infiltration, too little stimulated.

In treating psoriasis, chrysophanic acid is the best remedy, but even this remedy should not be used in every case, for it does harm when there are congestion and inflammation; but later, when the eruption becomes dry, it does good. In acne a tonic treatment is the best. In speaking of local applications, the reader of the paper said that if a substance is needed to be absorbed by the skin, then the animal fats should be used; if mere protection is wanted, vegetable fats do very well. Vaseline has little power of penetrating the skin.

He then went on to speak of arsenic, which, he said, is used too much by general practitioners in the treatment of skin diseases, and which, as regards skin diseases, would not be missed if abolished from the pharmacopœia; he now rarely uses it. It is a much overrated remedy.

Dr. Shepherd said he was not prepared to go the length that Dr. Fox did in attributing such a vast influence to diet in the treatment of skin diseases. No doubt it often is important, but he thought that, like many others, Dr. Fox was riding his special hobby too hard. Many individuals with an eczematous diathesis contract eczema from their occupation—change of diet will not benefit such cases. No doubt, people, as a rule, eat too much, and in the higher ranks of society this is especially the case. In such patients diet is of the utmost importance. In this country people eat too much meat, and he is in the habit, when treating skin cases, of limiting it to one meal a day. In regard to local applications, he was thoroughly in accord with Dr. Fox. Most physicians in inflammatory skin diseases stimulate too much; it is a common thing for physicians to prescribe zinc ointment in every case, and to give no directions as to the use of water and soap. He had found many skins in the acute stage of eczema unable to bear ointments at all, and to be much relieved by a mild lead lotion. He also agreed partly with Dr. Fox concerning the misuse of arsenic. It, like zinc

ointment, is prescribed as a routine practice in every skin case by many physicians. Still, he thought, he had given it with benefit in psoriasis and bullous eruptions. He had no hesitation in saying also that it is a most valuable tonic, and would be sorry to do without it. In treating eczema he had long ago discarded it.

DR. R. P. HOWARD said that it had been long recognized that diseases of the skin are local manifestations of a general condition. He thought that treatment by alteratives is the best. He was not prepared to hear that so much attention is now given to diet, but it seemed to him to be rational. He agreed with the last speaker in thinking that arsenic is valuable as a tonic, and useful in psoriasis and bullous affections.

DR. HINGSTON said that local treatment of skin diseases is very generally useless. He trusted to constitutional treatment by properly regulated diet. He did not agree with Dr. Fox in what he said about meat diet. The French-Canadians are great meat-eaters, yet have few skin diseases; some visit the United States and come back with affections of the skin; this he attributed to the diet, which is generally composed of pies, doughnuts, bread, and but little meat. Bread and meat he considered a good diet for skin diseases; they should, however, be taken separately. He believed in taking large quantities of water between meals.

DR. PHELPS, of Chateaugay, N. Y., as a general practitioner in the country, thoroughly endorsed every word Dr. Fox said. He believed most thoroughly in a complete change of diet in the treatment of skin diseases. He mentioned a case of infantile eczema which was cured by changing the diet from fresh cow's to condensed milk. Acne in females is, he thought, most generally caused by uterine disease, and until this is relieved the acne cannot be cured.

DR. A. L. SMITH said that he had long held that all skin diseases, not specific or parasitic, are due to errors of diet. He had little faith in local treatment, and considered that it is most important to attend to the stomach. He thought that the good old mixture of rhubarb and soda is too much neglected in the treatment of skin diseases.

DR. WILKINS asked Dr. Fox if inmates of penitentiaries are more free from skin diseases than other people. Also, if in Germany, where little meat is eaten, there is a less amount of diseases of the skin.

DR. FOX, in answer to Dr. Wilkins, stated that although they eat little meat in Germany, they drink much beer.

CORRESPONDENCE.

DEATH-RATE IN AMERICAN LYING-IN HOSPITALS.

To the Editor of THE MEDICAL NEWS,

SIR: I would like to have an opportunity to explain some points in my article on "The Death-rate of Lying-in Hospitals in the United States," which are criticised by Dr. Garrigues in his letter to THE MEDICAL NEWS of March 26. The original form of the article contained a detailed account of the number of women delivered and the number of deaths for each year, in the thirty-four hospitals, but this statistical table was found to occupy such an unconscionable amount of space in a journal devoted to general medical topics that the greater part of it was stricken out and only the total results for the six years 1880 to 1885 were allowed to remain. It would have been more courteous, I confess, to have referred specifically to the great improvement that Dr. Garrigues had effected in the Maternity Hospital, but the aim of the paper was to show the condition of the country as a whole in regard to lying-in hospitals, and, moreover, I thought at the time, and still hold the opinion, that Dr. Garrigues's pamphlet on Antiseptic Midwifery had been so widely read that it would surely be familiar to any one who might take the trouble to read my paper carefully.

As to the means, the use of antiseptic measures, by which this improvement was effected in the Maternity Hospital and afterward elsewhere, I regarded it as a fact so well known, so generally accepted, as to make a special reference to it, on my part, superfluous.

The reform instituted by Dr. Garrigues, in 1883, while it, or some modification of it, has been adopted in many of the foremost lying-in hospitals of the country, and has in them accomplished much good, has not, or had not in 1885, spread so widely or as rapidly as it should have done: Of the 3704 women who were delivered in 1885, in the thirty-four hospitals already mentioned, 2.02 per cent. died, and the following table speaks for itself:

The death-rate, from all causes, in five hospitals, 1885:

Louisville, City Hospital,	3.75	per ct. of	women	confined.
Indianapolis, City Hospital,	4.71	"	"	"
King's Co. Hospital, L. I.,	4.76	"	"	"
Brooklyn, Maternity,	4.44	"	"	"
New Orleans, Charity Hospital,	10.22 (!)	"	"	"

This last record reminds one of the days when Semmelweiss was struggling for reform in the Vienna Hospital or when Tarnier first took charge of the Maternité.

As to the injustice done the country by the publication of such statistics, no one could, more earnestly than I, desire to see this country as preëminent in scientific achievements as it is in material resources or political advancement, and if my original article, with the discussion it has provoked, should contribute in the smallest degree to the attainment of a higher level in this subdivision of scientific work, the management of parturient and puerperal women in hospitals, I shall feel well repaid, not only for the labor expended in the collection of the statistics, but also for the rather unfavorable criticism that their publication has excited.

BARTON COOKE HIRST.

PHILADELPHIA, March 26.

DISLOCATION OF THE FEMUR IN A YOUNG CHILD.

To the Editor of THE MEDICAL NEWS,

SIR: Our apology for reporting the following case is because of its rarity in children of such tender years, as otherwise the case presented nothing of especial interest worthy of note, except that it had a remarkable getting up only two days after the injury.

On August 24, 1885, Laura M. G., aged three years, seven months, and eighteen days, in waltzing and whirling around the room to the music of a piano, on which the nurse was drumming, fell, and in attempting to rise found she could not, commenced to cry, and complained

of pain in the hip. The child was placed in bed, and Dr. Deppen called in. He at a glance noticed that, to all outward appearance, there was an iliac dislocation of the hip-joint. Examining the case closely, he found the usual symptoms of such an injury present.

A careful examination, Dr. Wenrich in consultation, revealed a very typical case of iliac dislocation, with absence of all symptoms indicating fracture of the neck of the bone, or separation of the epiphysis. The child was thoroughly etherized, and the dislocation reduced, without any difficulty, by manipulation, the head of the bone slipping into the socket with a very audible snap, heard by all present. The child made a remarkable recovery, feeling so well at the end of two days that she got out of bed unobserved and walked across the room. No evil followed this, and she soon followed with similar excursions. DRS. WENRICH and DEPPEN.

WERNERSVILLE, PA.

NEWS ITEMS.

CINCINNATI.

(From our Special Correspondent.)

The COMMENCEMENT OF THE MEDICAL COLLEGE OF OHIO was held March 8th. The degree was conferred upon over seventy. A more than ordinarily large Spring Course began at this institution March 15th.

The Alumni Association held its annual meeting on the afternoon of commencement. Fully three hundred members were present. Interesting addresses were delivered by the President, J. H. Tate, M.D., of the class of 1840; W. H. Kelly, M.D., 1881; and T. P. Hart, M.D., 1887. Dr. Robert Boal, of the class of 1828, and the oldest living alumnus, was elected president for the ensuing year.

THE MIAMI MEDICAL COLLEGE held its Commencement March 9th. Twenty-nine young men received the degree of M.D. With the close of this session the Miami becomes the Medical Department of the University of Cincinnati.

THE ACADEMY OF MEDICINE has elected the following officers for the ensuing year:

President.—Joseph Ransohoff, M.D.
First Vice-President.—W. E. Keely, M.D.
Second Vice-President.—F. Forchheimer, M.D.
Recording Secretary.—G. A. Fackler, M.D.
Treasurer.—George E. Jones, M.D.
Corresponding Secretary.—James M. French, M.D.

The HAMILTON COUNTY MEDICAL SOCIETY has recently been formed. Its aim is the regulation of the practice of medicine in the State of Ohio. It has not as yet received the universal support which its object deserves, yet its membership is increasing. Dr. C. G. Comegys is President; Dr. J. A. Thompson, Secretary.

THE REGULATION OF THE PRACTICE OF MEDICINE IN MINNESOTA.—A new law has just been enacted in Minnesota by the provisions of which the Governor shall appoint a board of medical examiners consisting of nine members, who shall hold office for three years. No member of this board shall be appointed to serve for more than two terms in succession, and no member of any college or university having a medical department shall be appointed to serve as a member of the board, two of which shall be homœopathic physicians.

The third section provides that all persons hereafter commencing the practice of medicine and surgery, in any of its branches, in this State, shall apply to said board for a license so to do, and such applicant, at the time and place designated by said board or at the regular meeting of said board, shall submit to an examination in the following branches, to-wit: Anatomy, physiology, chemistry, histology, materia medica, therapeutics, preventive medicine, practice of medicine, surgery, obstetrics, diseases of women and children, diseases of the nervous system, diseases of the eye and ear, medical jurisprudence and such other branches as the board shall deem advisable, and present evidence of having attended three courses of lectures of at least six months each; said board shall cause such examination to be both scientific and practical, but of sufficient severity to test the candidate's fitness to practise medicine and surgery. When desired, said examination may be conducted in the presence of the dean of any medical school, or the president of any medical society of this State. After examination, said board shall grant a license to such applicant to practise medicine and surgery in the State of Minnesota; which said license can only be granted by consent of not less than seven members of said board.

The board may refuse or revoke a license for unprofessional, dishonorable, or immoral conduct. In all cases of refusal or revocation the applicant may appeal to appointing power of said board.

This act does not apply to commissioned surgeons of the United States army or navy, to physicians or surgeons in actual consultation from other States or territories, or to actual medical students practising medicine under the direct supervision of a preceptor.

According to section six, any person practising medicine or surgery within the State without having first obtained a license, or contrary to the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than fifty nor more than one hundred dollars, or by imprisonment in the county jail not less than ten nor more than ninety days, or both fine and imprisonment. Any person shall be regarded as practising within the meaning of this act who shall append the letters "M.D." or "M.B." to his or her name, or for a fee prescribe, recommend for the use of any person any drug or medicine, or other agency for the treatment, cure or relief of any wound, fracture or bodily injury, infirmity or disease; provided, however, this act shall not apply to dentists.

This act takes effect on July 1, next.

IN MEMORY OF DR. FLINT.—There has just been erected at Bellevue Hospital a tablet in memory of the late Dr. Austin Flint, by the Commissioners of Public Charities and Correction. It is of massive size and very handsome as well as novel workmanship. It is a plate of brass set on a panel of antique oak. The inscription, which is imprinted on the shining brass in Roman letters of black enamel, with initials in red enamel, is surrounded by a band of conventional palm

leaves, relieved at intervals with mat scrollwork. The inscription reads as follows:

In Memory of

AUSTIN FLINT, M.D., LL.D.

Entering the profession with broad culture and thorough education he remained an active physician to the last day of his life. As a medical writer he added to the knowledge of the American profession and to medical science. As a teacher he was loved and respected by thousands of his pupils in all parts of the country. As physician to Bellevue Hospital for twenty-five years, he contributed largely to its reputation by his character, acquirements, labors, and wise counsels.

UNIVERSITY OF NEW YORK.—The Medical Department of this institution graduated 151 candidates on March 8th.

COLLEGE OF PHYSICIANS AND SURGEONS OF BALTIMORE.—The fifteenth Annual Commencement of this institution was held on March 15th. The degree of Doctor of Medicine was conferred upon 88 graduates.

AMERICAN DERMATOLOGICAL SOCIETY.—The next annual meeting of this Society will be held in Baltimore, August 31st and September 1st and 2d.

PROFESSOR GUSSEROW.—This well-known physician has been proposed as the successor of the late Professor Schröder.

BERLIN HOSPITAL PRACTICE. — During the year which closed in January, 1887, in the nine large hospitals of Berlin 43,479 patients were treated, of whom 6347 died.

MEETINGS OF FRENCH SOCIETIES. — The French Society for Otology and Laryngology will meet in Paris on April 13th, and on the 17th and 18th of April next the yearly meeting of the Association of French Physicians will be held.

RESIGNATIONS FROM A HOMŒOPATHIC HOSPITAL.—Eight of the women physicians connected with the "Medical, Surgical, and Maternity Hospitals of the Women's Homœopathic Association of Pennsylvania," have resigned because the managers have made a rule that "no medicines, except strictly homœopathic potentized remedies, shall be allowed for use in the dispensaries or in any department of the hospital."

NOTES AND QUERIES.

THE IRON SALICYLIC SOLUTION IN RHEUMATISM.

MR. W. F. GRAYOT, of Smithland, Ky., writes us that he has been requested to prepare the salicylic acid and iron solution used in the treatment of rheumatism at the New York Hospital, according to the formula given in THE MEDICAL NEWS of December 11, 1886. He has tried it several times, but has not been able to make a perfect solution. He says: "The salicyl acid will not dissolve. Is there any special way of preparing it? If so, will you please be kind enough to send me the *modus operandi*. I have tried it every way I can think of, and have concluded that there must be some mistake in the recipe."

DR. GEORGE L. PEABODY, Physician to the New York Hospital, writes us concerning the formula, as follows:

"Upon the receipt of your note regarding the iron salicylic solution, I turned it over to my house physician, Dr. Vought, and asked him to go to the apothecary shop and put me up one ounce of the solution, exactly according to the printed formula in THE NEWS. The result is a perfectly clear solution.

"Dr. Vought tells me that the only details that are essential are to use crystalline phosphate of soda. If the water of crystallization has been driven off, you get *too much* of the phosphate. The water in the solution is warm water, not necessarily hot, but not ice cold."

A CORRECTION.

To the Editor of THE MEDICAL NEWS,

SIR: Will you kindly permit me to correct one error (probably typographical) in the otherwise accurate abstract which you did me the honor to give in your issue of March 26th, of my paper on "Local Treatment in Diphtheria," read before the Section on Practice of the New York Academy of Medicine, on March 15th. What I did say was that the nozzle of the atomizer should not be thrust far into the *mouth*—not into the nostril. I said—and believe the point to be of much practical importance—that spraying should never be made, in the treatment of diphtheria, a substitute in the nasal passages for syringing.

Yours, very respectfully, C. E. BILLINGTON, M.D.

NEW YORK March 26, 1887.

TO KEEP HYPODERMATIC SYRINGES PERVIOUS.

I have repeatedly meet with much annoyance in endeavoring to keep my hypodermatic syringe needles pervious by the introduction of the small wire furnished by the instrument dealer. Finding that the use of metallic wire favored occlusion, I naturally sought some non-corrosive substance to take its place; I substituted therefor horse-hair or fine shoemaker's bristles. Since I commenced the use of the bristles I have had no occluded needles. I claim that the use of the bristle will be of great benefit to the country practitioner. W. E. TODD, M.D.

CLINTON, MISS., March 11, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 26, 1887.

CORDEIRA, F. J. B., *Asst. Surgeon.*—Detached from Navy Yard, Boston, and placed on waiting orders.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 22 TO MARCH 28, 1887.

PERLEY, HARRY O., *Captain and Assistant Surgeon.*—Ordered for temporary duty at Fort Maginnis, M. T.—*S. O. 23, Dp. Dak.*, March 18, 1887.

GUY, L. EDW., *First Lieutenant and Assistant Surgeon.*—Leave of absence extended three months.—*S. O. 67, A. G. O.*, March 25, 1887.

REYNOLDS, FRANK, *Captain and Assistant Surgeon* (Retired).—Died March 4, 1887, at Oakland, Cal.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MARCH 26, 1887.

LONG, W. H., *Surgeon.*—Leave of absence extended five days, March 23, 1887.

URQUHART, F. M., *Passed Assistant Surgeon.*—Relieved from duty at Norfolk, Virginia, ordered to Washington, D. C., special duty, March 22, 1887.

PETTUS, W. J., *Assistant Surgeon.*—When relieved by Passed Assistant Surgeon Guitéras, to remain at Charleston, S. C., waiting orders, March 24, 1887,

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

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